July 26, 2017

Michelle Kaysen
United States Environmental Protection Agency, Region 5
Mail Code LU-9J
77 West Jackson Boulevard
Chicago, Illinois 60604

RE: Revised Semiannual Soil Vapor Extraction System Operations, Maintenance, and Monitoring Report, October 2015 through March 2016, Hartford Petroleum Release Site, Hartford, Illinois

Dear Ms. Kaysen,

On behalf of Apex Oil Company, Inc. (Apex), 212 Environmental Consulting, LLC (212 Environmental) submitted the draft *Semiannual Soil Vapor Extraction System Operations, Maintenance, and Monitoring Report, October 2015 through March 2016, Hartford Petroleum Release Site* to the United States Environmental Protection Agency (USEPA) and Illinois Environmental Protection Agency (Illinois EPA) on September 9, 2016. The report summarized routine maintenance and monitoring activities related to the operation of the soil vapor extraction system at the Hartford Petroleum Release Site conducted between October 1, 2015 and March 31, 2016.

The USEPA and Illinois EPA provided comments to 212 Environmental regarding the draft report via correspondence dated November 22, 2016. On April 6, 2017, the USEPA, Illinois EPA, Apex, and 212 Environmental met via teleconference to discuss the comments and the forthcoming revisions to the report. A response to comments, as well as the revised *Semiannual Soil Vapor Extraction System Operations, Maintenance, and Monitoring Report, October 2015 through March 2016, Hartford Petroleum Site, Hartford, Illinois*, is provided with this correspondence.

Apex and 212 Environmental appreciate your continued engagement with this project. If you have any questions or require additional information, please contact me at (513) 430-1766.

Sincerely,

Paul Michalski, P.G.
Senior Hydrogeologist

cc: Jordy Federko, Apex Oil Company, Inc.
Tom Miller, Illinois Environmental Protection Agency
Chris Cahnovsky, Illinois Environmental Protection Agency

Apex Response to Preliminary Technical Review Comments on Semiannual Soil Vapor Extraction System Operations, Maintenance, and Monitoring Report; October 2015 Through March 2016 Hartford Petroleum Release Site, Hartford, Illinois			
Comment Number	**Sub-Section, Page, Paragraph**	**Topics of Discussion**	**Comments / Recommended Revisions**
General			
G-1	N/A	EPA provided a number of general comments on soil vapor extraction (SVE) well designs during its review of the *Vapor Collection System Operation, Maintenance, and Monitoring Plan (July 2015)* . Comments 1, 2 and 3 in Section 1.0 Introduction below remain applicable for this reporting period.	
Response to General Comment No. 1	As discussed during the meeting with the United States Environmental Protection Agency (USEPA) and Illinois EPA on April 6, 2017, Apex Oil Company, Inc. installed six soil vapor extraction (SVE) wells and connected three existing SVE wells to the vapor collection system installed at the Hartford Petroleum Release Site (Hartford Site). The location and design of the wells was previously approved by the USEPA and IEPA.		
G-2	N/A	Prior to modification of the document, Apex should present to EPA proposed modifications. Following these discussions, Apex should then develop a work plan memorandum for EPA's technical review and approval.	
Response to General Comment No. 2	Apex's response to comments and revisions to the *Semiannual Soil Vapor Extraction System Operations, Maintenance, and Monitoring Report; October 2015 Through March 2016 (Semiannual SVE OMM Report, October 2015 through March 2016)* were discussed with the USEPA and Illinois EPA during the meeting on April 6, 2017.		
Section 1.0 Introduction			
1	1.1 Page 1-2 Para 2 and Table 1	Re: "*There are also an additional 11 wells that while connected, are not considered part of the SVE system including five wells that were installed within the Main Sand stratum for the Area A multiphase extraction pilot test (wells MPE-A001 through MPE-A005). These additional wells may be operated as conditions allow* ."	Table 1 lists 26 wells that are not considered part of the SVE system. Modify the report to clarify the total number of wells that are not considered part of the system and provide rationale for all wells, or each well, as applicable.

<table>
<tr><td>Response to Comment No. 1</td><td colspan="3">During the reporting period there were 26 wells previously listed in Table 1 that were not considered to be part of the SVE system as follows:
• Wells HSVE-002S, HSVE-002D, HSVE-011S, HSVE-011D, HSVE-025S, HSVE-026S, and HSVE-027S were previously plugged and abandoned.
• Wells HSVE-005S and HSVE-005D have been replaced with well HSVE-005R.
• Wells HSVE-006S and HSVE-006D were replaced with well HSVE-006R. These wells remain in place but are not operated.
• Wells HSVE-006R2 and HSVE-104 were installed but never connected to the vapor collection system. Well HSVE-104 was connected to the SVE system in June 2017.
• Wells HSVE-013 through HSVE-016 were installed within the sewer line pipe bedding along East Watkins Street and no longer routinely operated.
• Well HSVE-028D is not useable due to a collapsed well screen.
• Well HSVE-031S has not been operated since installation according to historical data.
• Well HSVE-031DP is a one-inch probe collocated with well HSVE-031D and is not operated.
• Well HSVE-032H is a horizontal vapor extraction well and is not operated.
• Wells MPE-A001 through MPE-A005 were installed within the Main Sand stratum for the Area A multiphase extraction pilot test and are typically occluded and cannot be operated.

Subsequent to submittal of the Semiannual SVE OMM Report, October 2015 through March 2016, it was determined that the control vaults for wells HSVE-008S and HSVE-008D were previously removed making these wells inoperable. As such, these wells are no longer considered part of the SVE system. Table 1 and the text included in Section 1.1 have been revised accordingly.</td></tr>
<tr><td>2</td><td>1.1
Page 1-2
Para 3</td><td>Re: “The extraction wells connect to horizontal conveyance lines through a series of 32 control vaults (V1 through V32). The control vaults are of different sizes, but are generally larger than the extraction well vaults. Fifteen of the vaults also contain sample/vacuum ports. The conveyance lines are connected to the Main Header within the Main Vault that extends to the east beneath the railroad right-of-way and to the thermal treatment system located on the Premcor Refinery.”</td><td>Modify the report with a schematic drawing, either existing or newly developed using a conventional process and instrumentation diagram format, which illustrates the SVE transmission line connections, diameters and valve configurations. Such a diagram would be helpful for better coordination of the SVE system maintenance and for EPA’s reviews of SVE system configuration operations.</td></tr>
<tr><td>Response to Comment No. 2</td><td colspan="3">The piping and instrumentation diagrams were included with the Final Vapor Collection System Operation, Maintenance, and Monitoring Plan (Trihydro 2015). The P&ID diagrams will also be included as Appendix A.</td></tr>
<tr><td>3</td><td>1.1
Page 1-3
Para 2 and Figure 2</td><td>Re: “Each thermal oxidizer has a 5 HP combustion air blower and a 7.5 HP tertiary air fan. A motor operated valve on the tertiary air fan opens when the combustion temperature exceeds a high temperature set point.”</td><td>Revise Figure 2 to show the 7.5 HP tertiary blower.</td></tr>
<tr><td>Response to Comment No. 3</td><td colspan="3">Figure 2 provides a general schematic of the thermal treatment system. Detailed drawings of the thermal treatment system are provided within the VCS Operating and Maintenance Plan (URS 2014).</td></tr>
</table>

4	1.1.3 Page 1-4 Para 1 and Table 1	Re: "*The depth of the stinger can be adjusted to depress the water level in the extraction well. The stinger designs, summarized on Table 1…*"	Modify Table 1 to add a column that indicates the most current stinger depths, and the depth to water/groundwater elevation, so that the amount of drawdown created by the stinger can be ascertained. Open for discussion if the frequency of stinger adjustments is too high for a meaningful response.
Response to Comment No. 4	As discussed during the April 6, 2017 meeting, stinger adjustments are performed at a high frequency. The stinger depths for the reporting period are listed in Column K of the summary tables included as Appendix B of the Semiannual SVE OMM Report, October 2015 through March 2016.		
5	1.1.3 Page 1-5 Para 3	Re: "*Typical stinger configurations are shown on Figure 4. The current SVE system does not have an oil- water separator and LNAPL cannot not be recovered. Therefore, wells that historically or currently have measurable LNAPL are not operated with a stinger and only vapor is extracted when the water table is low enough to allow recovery*."	Modify the report to indicate that this operational limitation reinforces the need to develop a remedial framework that results in effective removal of LNAPL, as well as other contaminant phases.
Response to Comment No. 5	As discussed during the meeting on April 6, 2017, the multiphase remedy is currently being addressed separate from the routine operations, maintenance, and monitoring of the SVE system. Comments related to the multiphase remedy will not be addressed herein but instead will be discussed as part of on-going meetings between Apex and the Agencies.		
Section 2 Vapor Collection System			
6	2.1 Page 2-1 Para 1 and Table 1	Re: "*During periods of high groundwater levels, the system was operated using as many of the approximately 114 extraction wells that are installed in the shallow stratum and currently considered part of the system. In addition, the four wells considered part of the SVE system that are screened within the Main Sand stratum (HSVE-004R, HSVE-105D, HSVE-106D, and HSVE-107D) and five multiphase extraction wells that are not considered part of the SVE system (MPE-A001 through MPE-A005) were operated as conditions allowed.*"	Provide an existing or newly-developed map showing wells in and out of operation.

Response to Comment No. 6	The operability of individual SVE wells is dependent on subsurface conditions (i.e., groundwater elevation, soil moisture content, etc.) and as a result varies significantly over time. The operability of a well is currently described within the following figures and tables within the *Semiannual SVE OMM Report, October 2015 through March 2016* : • Figure 5 depicts the percent each well is operating over the reporting period. • Figure 7 graphically presents the number of wells operating each week over the reporting period. • Appendix B summarizes operations within each SVE well. Operating wells are reported with a header valve position that is greater than 0% (with the exception of SVE wells that contain a straw stinger). This indicates that the extraction well had an applied vacuum at the time the measurement was collected. For wells with a straw stinger, the main header valve position is reported at 0%, as the vacuum is directed through the straw stinger. In these cases, the straw stinger valve position would indicate whether the well was operational and a vacuum was applied. The header valve position is provided in column W and the straw stinger valve position is provided in column X. In addition, Apex has modified Table 1 to include the percent operation of each well over the reporting period.		
7	Table 2	Table 2 includes flow rate and flame ionization detector (FID) measurements from each SVE well, but does not include wellhead vacuum measurements. Because of water, sediment, and the long distances to the SVE wells, wellhead vacuum is likely to vary significantly and is likely valuable data for evaluating the SVE system effectiveness.	Modify Table 2 to show wellhead vacuum for each SVE well.
Response to Comment No. 7	Table 2 (revised Table 4) has been updated to provide the wellhead vacuums recorded during the monthly gauging events which were used to calculate mass recovery rates from the individual extraction wells. Wellhead vacuum measurements collected from each operating extraction well over the reporting period are reported in Column U of the summary tables included as Appendix B.		
8	2.1 Page 2-1 Para 2 and Table 2	Re: "*When groundwater trigger elevations were reached in at least three of the trigger monitoring locations, the system was optimized for mass recovery by shutting down those wells with low TVPH concentrations (less than 100 ppmv), as well as those wells with low flow rates.*"	Modify the table with an additional column(s) to: (1) indicate which SVE wells specifically were turned on or off in response to the groundwater trigger events and (2) describe how (specifically) the system was reconfigured when the groundwater triggers were reached.
Response to Comment No. 8	During the meeting on April 6, 2017, it was discussed that the rationale for adjusting individual extraction wells is multifaceted given the multiple inputs (screen occlusion, vapor extraction rate, TVPH concentration, water recovery rate, etc.) that are considered simultaneously. Additional effort will be made to document the rationale for individual well adjustments in future semiannual reports.		
9	2.1 Page 2-1	Re: "*Groundwater elevations were below the trigger criteria within three of the five monitoring wells…*"	This Section states that when conditions in the trigger wells are met, extraction is focused at those wells with higher TVPH and flowrates. Does this always translate to a shift from shallow wells to deeper wells, or, does it vary? Include in the text what was observed during times when the system was operated for additional mass recovery, compared to a vapor barrier/mitigation operation.

Response to Comment No. 9	As discussed during the meeting on April 6, 2017, there is not a dramatic shift from vapor recovery in shallow extraction wells to deeper extraction wells when groundwater trigger conditions are met. As described in Apex's response to Comment No. 8 there are many inputs that are considered when making adjustments to individual wells and these changes tend to result in gradual changes in the overall system operations during periods when groundwater elevations are above the triggers versus periods when they are below triggers with TVPH concentrations being one of the variables considered.		
10	2.1 Page 2-2	Re: "*There are many conditions that may influence the operability of an extraction well including occlusion of the well screen with groundwater and reduced permeability associated with increasing water content within the vadose zone* ."	Modify the report to indicate that this operational limitation reinforces the need to develop a remedial framework that results in more effective vapor removal, as well as other contaminant phases. Provide a map that indicates which well screens are and/or have been known to be impacted by occlusion or reduced permeability from increased water content within the vadose zone.
Response to Comment No. 10	Please refer to Apex's response to Comment No. 5 regarding the multiphase remedy and Comment No. 6 regarding operability within the individual vapor extraction wells.		
11	2.1 Page 2-2 Para 1 Bullet 1	Re: "*Operating Vacuum: The target operating vacuum is between 80 and 120 inches of water (in- H2O), provided that occasionally this may be reduced to prevent occlusion of the well screen and allow for extraction of soil vapor from the well.*"	Modify the report to indicate the actual operating vacuum of each SVE well. Provide maps and/or cross-sections along streets that illustrate the minimum and maximum known ranges of zone of influence (ZOI) based on measured vacuum. Or indicate that such figures will be developed as part of the Combined Effectiveness Monitoring Plan.
Response to Comment No. 11	Operating vacuum for each SVE well is provided in the summary tables included as Appendix B. As discussed during the meeting on April 6, 2017, vacuum is only a single line of evidence which should be used to evaluate the influence of the individual vapor extraction wells over time. Other parameters including the distribution of oxygen and volatile petroleum hydrocarbons should also be considered when evaluating the zone of influence. While vacuum measurements have been recorded during historical effectiveness monitoring events (including those that occurred between October 2015 and March 2016) within the vapor monitoring probes and multipurpose monitoring points, the data is not considered useable for the purpose of evaluating the zone of influence within individual extraction wells. First, pressure measurements were collected using a Dwyer Series 475 Metz 111 manometer or an Ashcroft 2074® Digital Pressure Gauge. These devices are capable of measuring vacuum with a resolution of 0.1 inches of water (in-H2O). However, a vacuum in the range of 0.025 to 0.035 in-H2O is generally sufficient to maintain pneumatic control and prevent vapor intrusion into structures (USEPA 2008). Second, many of the monitoring locations were not installed with a competent surface seal (e.g., ball valve or air tight cap) resulting in ambient air leakage and inaccurate vacuum measurements. In order to improve the vacuum and pressure measurements during effectiveness monitoring events, Apex has purchased a Dwyer Series HM35		
12	2.1 Page 2-2 Para 1 Bullet 2	Re: "*The flowrate under these operating vacuums has been between 8 and 80 scfm, which were used as benchmarks for operating individual wells.*"	Modify the report to clarify how the benchmarks for flowrate were established and used.

Response to Comment No. 12	As discussed during the meeting on April 6, 2017, flowrates between 8 and 80 scfm were used as "benchmarks" by previous consultants as documented in the historical Agency-approved work plans. These "benchmarks" were adopted by Apex when assuming operations of the vapor collection system in April 2015. It is well understood that the current methods for measuring vapor flowrates results in inaccurate estimates. Due to the inaccuracies associated with flowrate measurements, low flowrates are more closely scrutinized when making well adjustments. The following text will be inserted after the second bullet in Section 2.1 to provide additional clarification: "In practice, given the inaccuracies associated with flowrate measurements (further discussed in Section 2.3.1) low flowrates are evaluated more closely than higher flowrates. When low (or no) flowrate is observed, further evaluation is conducted to determine the cause, such as well screen occlusion or transmission line blockage. If the flowrate cannot be increased, the well may be shut down until conditions improve or maintenance can be completed." It should be noted that Apex has completed redesign and testing for modifying the wellheads, controls, and methods used to measure flowrates. Apex is currently retrofitting wellhead and controls within extraction wells primarily located in SVE Effectiveness Zone 1. These modifications will allow for a more accurate method of measuring vapor extraction and water recovery rates from the SVE wells in the future.		
13	2.1 Page 2-2 Para 2	Re: "*It is important to note that while in theory, shutting down extraction wells with low TVPH concentrations would allow focused mass removal, in practice this is not always possible as the blowers do not have variable speed capability. Therefore, some wells with lower TVPH concentrations may continue to be operated to maintain airflow within the operating blowers. To alleviate this and obtain greater operational flexibility, Apex has replaced sheaves on two of the four blowers, which allows for a range of airflow from the individual blowers (between 600 scfm from Blower No. 4 to 850 scfm from Blower No.1)* ."	Modify the report to explain why replacing sheaves, or other optimization action, was not undertaken for the remaining two of four blowers. In addition, provide rationale for not upgrading the system to variable frequency drives (VFD) for the blowers. Also explain why additional SVE wells were not considered as a mechanism to operate the blowers at their greatest capacity while recovering as much mass as possible.
Response to Comment No. 13	As discussed on April 6, 2017, installation of VFDs was considered as one option for improving operation of the thermal treatment system. However, replacing the sheaves was determined to be more cost effective, in light of future redesign of the treatment system. Installation of VFDs will be considered as part of the redesign. Replacing sheaves on two of the four blowers allows Apex to operate the system over a broad range of air flowrates. The text within Section 2.1 has been modified to include the operating flowrate for each blower.		
14	2.1.1 Page 2-2 Para 1 and Figure 5	Re: "*Figure 5 provides a summary of the percent of time that each extraction well was operating during the reporting period.* "	It is difficult to discern from Figure 5 which wells were in operation and for what length of time. Modify the report via inclusion of a table that lists percent of operational times for individual wells.
Response to Comment No. 14	Please refer to Apex's response to Comment No. 6 regarding operability within the individual vapor extraction wells.		
15	2.1.1 Page 2-3 Para 1	Re: description of wells that were not operated due to occlusion	Besides the Main Sand wells in Z1 and the wells within Z6, explain why the remaining shallow wells are not under consideration for replacement. Or, explain how other recommendations, in this plan or others, will address the need.

Response to Comment No. 15	In accordance with the Agency-approved work plans, designs, and specifications, Apex completed the installation of six additional SVE wells (HSVE-108 through HSVE-113), as well as connection of three additional existing SVE wells (HSVE-001D, HSVE-030S, and HSVE-104) to the vapor collection system during the second quarter 2017. The effectiveness of the SVE system will continue to be monitored to determine the need for additional SVE wells to mitigate the vapor intrusion pathway and enhance mass recovery within the shallow stratum.		
16	2.2 Page 2-3 and 2-4	Re: *"Field screening was conducted by collecting soil vapor samples within a Tedlar® bag and field screening the samples for TVPH and methane concentrations using a ThermoScientific TVA1000B flame ionization detector (FID)."*	1. Modify the document to explain the method used to differentiate between TVPH and methane. 2. Recommend conducting FID measurements with and without a granular activated carbon (GAC) filter to differentiate between TVPH (i.e. nonmethane hydrocarbons) and methane. 3. While the TVA1000B FID also includes a photoionization detector (PID), it was agreed during the 11/16/16 meeting in Edwardsville, IL that use of a PID was not required provided that FID measurements were conducted according to item No. 2 above.
Response to Comment No. 16	A GAC filter has been used to differentiate between TVPH and methane concentrations within soil vapor samples. The TVPH and methane concentrations in samples collected from the extraction wells during the reporting period are provided in Columns L and P, respectively within the summary table included as Appendix B . The collection of PID measurements has recently been discontinued. The following text will be added to this section of the report: "A granulated activated carbon (GAC) filter is attached to the FID to obtain the methane concentration. The petroleum hydrocarbon concentration (PHC) is then estimated by subtracting the methane concentration from the TVPH concentration. "		
17	2.2.1 Page 2-4 Paragraph 2	Re: *"Flowrate measurements estimated using pitot tubes are only performed within the Phase I and II extraction wells and involves the insertion of a pitot tube into the well casing parallel to the flow direction."*	Modify the document to more clearly state the manufacturer and model number of the pitot tube and the method of measurement, and include calculations.
Response to Comment No. 17	The manufacturer and model of the pitot tube, as well as the method of collecting measurements and estimating the flowrate were added to this section.		
18	2.2.1 Page 2-5 Para 1	Re: "*Apex is currently being developing future flowrate measurements, including use of a portable flowrate meter and water knockout* ."	Prior to implementation, Apex should present to EPA proposed modified flow measurement methods. Following these discussions, Apex should then develop a work plan memorandum for EPA's technical review and approval.
Response to Comment No. 18	Design drawings and description of the modified flow rate measurement methods were provided to the Agency on March 13, 2017. Per the Agency request, subsequent testing of the modified flow rate measurement methods was conducted within four modified extraction wells during the second quarter of 2017.		

19	2.2.2 Page 2-5 Para 1 and Tables 2 and 3	Re: "*The first approach involved summing the mass removal rate from each of the individual extraction wells using the following inputs: The TVPH concentration (C) measured monthly from each extraction well using a ThermoScientific TVA1000B FID.*"	As was discussed in the 11/15/16 meeting in Edwardsville, IL, there is a significant difference in the mass removal rates derived for the SVE wells versus at the thermal treatment unit. The mass removal rates for SVE wells provided in Section 2.2.2 were calculated using the FID-based readings of TVPH listed in Table 2; whereas, the mass removal rates for the thermal treatment system provided in Section 3.1 were calculated using the TVPH concentrations derived from laboratory analysis results listed in Table 3. An independent evaluation of the data sets showed that, on average, the mass removal rates calculated using FID readings from the SVE wells were consistently up to four times (4x) higher than those based on the laboratory analytical results. Per the 11/15/16 discussions, identify the range of variation between the two data sets and explain any related implications on overall remedy evaluation or performance.
Response to Comment No. 19	As discussed during the meeting on April 6, 2017, the purpose of estimating recovery rates on a well by well basis is to assess the performance of the individual extraction wells over time. For instance, a reduction in recovery rates over time could indicated a depletion of the mass of petroleum hydrocarbons within the shallow stratum near an extraction well or it could point to maintenance issues within an extraction well. Vapor samples are not collected from the individual extraction wells for laboratory analyses. Therefore, to evaluate mass recovery on a well-by-well basis, field screening measurements of PHC are used. Similarly, the PHC estimated from field screening results from the Main Header was used to calculate the cumulative mass recovery rate for the SVE system, as reported in Section 2.2.2 (revised Section 2.2.3). As noted in this section, the cumulative mass recovery rate estimated by summing the rates from the individual extraction wells does not correlate with the mass recovery rate calculated from the Main Header, which is primarily attributed to inaccurate flowrate measurements within the extraction wells. It should be noted that this comparison in mass recovery rates based on field screening results of PHC was previously requested by the USEPA and Illinois EPA, and therefore included within the *Final Vapor Collection System Operation, Maintenance, and Monitoring Plan* (Trihydro 2015). Conversely, the recovery rate estimates reported in Section 3.1 are based on the analytical results for samples that are collected from the Main Header, and are therefore considered more accurate than the estimates reported in Section 2.2.2 (revised Section 2.2.3). Therefore, recovery rate estimates based on the laboratory analytical results are included on Figure 11 (revised Figure 13) and are also used for reporting annual air emissions to the Illinois EPA. The anticipated poor correlation between the field measured PHC mass recovery estimates and the analytical based mass recovery rates has no effect on overall evaluation of the performance of the SVE system.		
20	2.2.2 Page 2-7	Recommended SVE wells	EPA provided separate comment via email on 11/17/16 (attached).
Response to Comment No. 20	Please refer to Apex's response to Comment No. 15 regarding the evaluation, design, and installation of additional extraction wells at the Hartford Site.		

21	2.3 Page 2-8 Para 1	Re: "*Additional valves may be replaced within the nine extraction wells with documented leaks that exceed 10 in-H2O (including HSVE-003D, HSVE-017D, HSVE-018D, HSVE-022, HSVE-023D, HSVE-024S, HSVE-035, HSVE-078, and HSVE-084) as part of well reconfiguration activities over the coming year* ."	Modify the document to provide additional information regarding the size and causes of these leaks.
Response to Comment No. 21	The text included in Section 2.3 (revised Section 2.2.3) will be revised to state: "The valves connecting the individual wells to the transmission system occasionally leak due to normal wear attributed to exposure to groundwater within the extraction wells and rainwater accumulating within the control vaults. Valves were replaced in the transmission lines connecting wells HSVE-024D (formerly had a 4-inch butterfly valve) and HSVE-099 (formerly had a 2-inch gate valve) to the transmission lines. The valves at these two extraction wells were leaking and therefore replaced with a brass 2-inch gate valve. Well HSVE-024D was reconfigured to reduce the 4-inch transmission line to 2-inch line as it was determined that for consistency, ease of operation, and cost, all replacement valves will be 2-inch diameter gate valves. Additional valve replacement will be conducted as part of the well reconfiguration activities, prioritizing those wells with the highest measured leakage. A summary of wells with leaking valves and the degree of leakage is summarized on Table 3."		
22	Table 2	Re: " *TOTAL MASS REMOVAL BASED ON SVE MAIN HEADER MEASUREMENTS* "	Modify the "TVPH" and "Flow Rate" data in Table 2, as applicable, to address the apparent confusion between the data in the SVE main header and in the columns. Modify the document to clarify whether the TVPH value is derived from FID readings and includes methane, which is not a petroleum hydrocarbon. Use of the term TVPH should only refer to C2 to C5 constituents, and should not include methane, which should be reported separately.
Response to Comment No. 22	Please refer to Apex's response to Comment No. 19 regarding estimation of mass recovery rates. It should be noted that the mass recovery estimates in Section 2 were calculated using PHC by subtracting the methane concentration from the TVPH concentration. Table 2 (revised Table 4) and any corresponding text have been modified accordingly.		
23	Table 2 and Table 3	Re:"*TOTAL MASS REMOVAL BASED ON SVE MAIN HEADER*" last row on Table 2 and *"TVPH Recovery Rate"* Column on Table 3.	The mass removal rates in Table 2 are grossly inconsistent with the same estimates in Table 3. For example, for October 2015, the mass removal rate in the SVE main header in Table 2 is 1,807 lbs/day while it is an average of 380 lbs/day in Table 3. Revise document to provide the correct TVPH recovery rate and provide reasons or explanations for this discrepancy.
Response to Comment No. 23	Please refer to Apex's response to Comment No. 19 regarding estimation of mass recovery rates.		

Section 3.0 Thermal Treatment System			
24	3.1 Page 3-1 Para 2	Re: "*As described in Section 2.2.2 and summarized in Table 4.* "	Modify the report to either correct the table numbering, or to include a Table 4; which appears to be missing from the report.
Response to Comment No. 24	References to the revised tables, including those in Section 3.1, will be corrected throughout the report.		
25	3.1 Page 3-1 Para 2	Re: "*Daily hydrocarbon mass recovery rates varied from 6 to 165 gallons per day with a calculated total hydrocarbon vapor removal of approximately 11,750 gallons during the reporting period* ."	As was discussed in the 11/15/16 meeting in Edwardsville, IL, modify the document to recalculate mass removal of 11,750 gallons. Modify the report to indicate that this operational performance reinforces the need to develop a remedial framework that results in more effective vapor removal, as well as other contaminant phases
Response to Comment No. 25	Please refer to Apex's response to Comment No. 5 regarding the multiphase remedy and Comment No. 19 regarding estimation of mass recovery rates.		
26	3.1 Page 3-1 Para 3 Table 3 and Figure 11	Re: "*Figure 11 presents a comparison of the hydrocarbon mass recovery rate to the Mississippi River and groundwater elevation within the Rand stratum (as reported in monitoring point MP-29C).*"	Based on the descriptions provided in Section 3.1 and Table 3, the mass removal rates in Figure 11 are estimated based on weekly analytical samples collected from the main header. As was discussed in the 11/15/16 meeting in Edwardsville, IL, it is recommended to include an explanation of how the daily mass removal rates in Table 3 and Figure 11 and the totals were calculated. For example, explain how weekly samples and flow measurements were converted to monthly mass removal rates. It is recommended that the calculations be more transparent for review by project stakeholders.

Response to Comment No. 26	The following text will replace the second paragraph in Section 3.1: "Samples are collected weekly from the Main Header and submitted to Eurofins-AirToxics located in Folsom, California for analysis of total petroleum hydrocarbons (TPH) ranging from C2 to C10 via USEPA method TO-3, speciated volatile petroleum hydrocarbons via USEPA method TO-15, as well as methane, potential energy reported in (BTUs), and specific gravity via ASTM 1945. The mass recovery rate (in units of pounds per day) for the SVE system is estimated using the TPH laboratory analytical results and the corresponding flowrate on the day the sample was collected using the following equation (USEPA 1989): $M = C \times Q \times MW \times 1.581E\text{-}07 \times 24$ hours/day Where: M = Mass recovery rate (pounds per hour) C = TPH concentration (ppmv) Q = Vapor extraction flowrate (scfm) MW = Molecular weight of (lb/lb-mole) The mass recovery rate is converted to equivalent gallons per day of gasoline as follows: M (gallons/day)=M(pounds/hour)*((24 hours/day)/ρ) Where: M = mass recovery rate (pounds per hour or gallons per day) ρ = density of LNAPL (pounds per gallon, assumed to be 6.08) The mass recovery rate is assumed to apply to the day the sample was collected and the days following until the next sample is collected for laboratory analysis. Hydrocarbon mass recovery rates varied from 6 to 165 gallons per day with a calculated total hydrocarbon vapor removal of approximately 12,932 gallons during the reporting period.		
27	3.2.1 Page 3-2 Para 2	Re: "*A total of approximately 249,900 gallons of water was transferred to the WRWTP for treatment and disposal during seven separate events over the course of the reporting period.*"	Modify the report to confirm the methods used to transfer the 249,900 gallons of water to the WRWTP for treatment. Note: Given the high volume of water, the relatively high cost, and the high environmental footprint of batch-shipping water via truck, it is recommended that an alternate disposal method be discussed for potential future application; for example, a treatment system with continuous or batch discharge to the storm sewer.
Response to Comment No. 27	The following text will be added to Section 3.2.1: "Water is then transferred to the WRWTP by tanker truck as there is no direct discharge from the TTUs to the WRWTP." As discussed during the meeting on April 6, 2017, redesign of the treatment system is currently underway to address the limitations of the current system.		

4.0 Effectiveness Monitoring			
28	4.1 Page 4-1 Para 1	Re: "*If TVPH concentrations exceed 10 ppmv within indoor air or 350 ppmv within the sub-slab probe, then: (1) a soil vapor sample is collected with a Tedlar bad for additional field screening, and (2) indoor air and soil vapor samples may also be collected for laboratory analysis* ."	As was discussed in the 11/15/16 meeting in Edwardsville, IL, provide a decision matrix which will be used to determine when an indoor air sample will be collected for laboratory analysis. Indoor air samples should be analyzed for the full suite of VOCs and TVPH by TO-15 so that concentrations of individual compounds can be compared to risk screening levels and to better confirm if the source is from the petroleum plume or a household indoor air source. The decision matrix should include the rationale for why either the existing 10 ppmv/350 ppmv action levels are protective of chronic exposure to petroleum constituents or new risk-based action levels should be provided.
Response to Comment No. 28	A figure depicting the vapor intrusion pathway decision flowchart has been added as Figure 15.		
29	4.1.1 Page 4-3	Re: "*Overall the weekly in-home effectiveness monitoring results demonstrate that the mitigation measures (primarily operation of the SVE system) are effective at preventing migration of volatile petroleum related constituents into the structures where a completed pathway has previously been documented."*	Delete this statement or modify the report to indicate that these conclusions are uncertain and that additional efforts to confirm the effectiveness of mitigation systems will be addressed in the Combined Effectiveness Monitoring Work Plan.
Response to Comment No. 29	This statement will be deleted as requested.		
30	4.1.2 Page 4-5 Para 4	Re: "*Overall the quarterly in-home effectiveness monitoring results demonstrate that the mitigation measures (primarily operation of the SVE system) are effective at preventing migration of volatile petroleum related constituents into structures at the Hartford Site* ."	Delete this statement or modify the report to indicate that these conclusions are uncertain and that additional efforts to confirm the effectiveness of mitigation systems will be addressed in the *Combined Effectiveness Monitoring Work Plan* .
Response to Comment No. 30	This statement will be deleted as requested.		

31	4.2.1 and 4.2.2	Section 4.2.1 Re: "There were 2 locations (1%) in which a pressure was measured versus 46 locations with a vacuum (33%) and 92 locations (66%) in which there was not a pressure or a vacuum measured." Section 4.2.2 Re: *"There were only 13 locations (10%) in which a pressure was measured versus 71 locations with a vacuum (52%) and 51 locations (38%) in which there was not a pressure or a vacuum measured.*	The fourth quarter of 2015 and first quarter 2016 found vacuum responses at only 33 and 52 percent of the vapor monitoring points, respectively This lack of vacuum influence suggests that the regional SVE system ZOI does not fully extend throughout the area. As was discussed in the 11/15/16 meeting in Edwardsville, IL , modify the document to display the vapor monitoring point vacuum data spatially (in conjunction with SVE wellhead vacuum data) to support the evaluation of the SVE system's effectiveness. Provide maps and/or cross-sections along streets that illustrate the minimum and maximum known ranges of ZOI based on measured vacuum.
Response to Comment No. 31	Please refer to Apex's response to Comment No. 11 regarding the use of vacuum as a line of evidence for evaluating the zone of influence of the individual extraction wells.		
32	Figures 8 and 9	None of the vapor monitoring point locations are labeled.	Modify Figures 8 and 9 to include vapor monitoring point labels.
Response to Comment No. 32	Figures 8 and 9 (revised Figures 9 and 11) were modified to include labels for the monitoring locations.		
33	Figures 8 and 9	The green background for zero values makes this figure difficult to read	Consider using a color scale where zero values correlate to white, so the figure is easier to read.
Response to Comment No. 33	As discussed during the meeting on April 6, 2017, Figures 8 and 9 (revised Figures 9 and 11) have been revised per recommendations from the USEPA and Illinois EPA.		
34	Figures 8 and 9	Aside from HSVE-99, there appears to be little correlation between the vapor monitoring point TVPH concentration and the mass removal rates. This may be partially because this figure compares TVPH with mass removal rate—it may be more meaningful to compare vapor monitoring point TVPH with SVE well TVPH.	Consider preparing a figure that shows a comparison of SVE extraction well soil vapor concentrations to vapor monitoring point soil vapor concentrations.
Response to Comment No. 34	As discussed during the meeting on April 6, 2017, Figures 8 and 9 (revised Figures 9 and 11) presenting TVPH concentrations measured within the effectiveness monitoring locations compared to the mass recovery from operating SVE wells have been added to this report.		
Section 5.0 River Stage Triggered Events			
	N/A	No comments	No recommendations
Section 7.0 References			
	N/A	No comments	No recommendations
Appendix A Routine Vapor Collection System Monitoring Results, October 2015-March 2016			
	N/A	No comments	No recommendations

Appendix B Thermal Treatment System Water Quality Discharge Reports			
	N/A	No comments	No recommendations
Appendix C Thermal Treatment System Vibration Analysis Reports			
	N/A	No comments	No recommendations
Appendix D Weekly In-Home Monitoring Results			
	N/A	No comments	No recommendations
Appendix E Quarterly In-Home Monitoring Results			
35	Excel file “2016_01-QrtlyIn-HomeMonDet_App-E1” 309 N Olive SS-2	309 N Olive SS-2 (lines 135 and 136) show that a Tedlar bag sample was collected on February 9, 2016 and February 11, 2016, however, no FID or PID readings were collected on these dates.	Recommend that FID, lower explosive limit (LEL), and oxygen measurements be collected immediately before and after Tedlar bag sample collection. These data are important for use in evaluating the effectiveness and accuracy of the field instruments in comparison with the Tedlar bag results. Additionally, the Tedlar bag results in column H through M, do not appear to show laboratory analytical results for TVPH or BTEX. Modify Table to show the Tedlar bag analytical results.
Response to Comment No. 35	As discussed during the meeting on April 6, 2017, Tedlar bags are not submitted for laboratory analyses but rather are used to perform field screening of TVPH and methane concentrations using an FID, %LEL using a four gas meter, as well as oxygen and carbon dioxide concentrations using a multigas meter. There were not any modifications to the table included in revised Appendix G.		
Appendix F Regional Effectiveness Monitoring Results			
36	Regional Effectiveness Monitoring Results Table	Re: *“Static Pressure/ Vacuum (in-H2O)”* Column E	The static pressure/vacuum measurements would be more valuable if they could be compared to historical results and if they were presented spatially, so their location could be viewed in relation to active SVE wells, structures and geological features.
Response to Comment No. 36	Please refer to Apex's response to Comment No. 11 regarding the use of vacuum as a line of evidence for evaluating the zone of influence of the individual extraction wells.		
37	Regional Effectiveness Monitoring Results Table	Re: Columns K (Methane), Column L (Total Hydrocarbons), Column M (Petroleum Hydrocarbons), and Column O (Volatile Organic Chemicals). These headings are not clear and inconsistent with terminology used elsewhere in the report.	Modify Tables to provide details regarding the manner in which these data were obtained (i.e. FID with GAC filter, PID measurements, etc.); apply this procedure consistently throughout the report and in future reports.
Response to Comment No. 37	The requested information will be add to the notes in the table included as revised Appendix C.		
Appendix G River Stage Triggered Monitoring Event Results			
	N/A	No comments	No recommendations

REVISED

SEMIANNUAL SOIL VAPOR EXTRACTION SYSTEM OPERATIONS, MAINTENANCE, AND MONITORING REPORT OCTOBER 2015 THROUGH MARCH 2016

HARTFORD PETROLEUM RELEASE SITE

HARTFORD, ILLINOIS

July 26, 2017

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SECTION 1.0
INTRODUCTION

This report summarizes the operations, monitoring, and maintenance (OMM) of the soil vapor extraction (SVE) system located in Hartford, Illinois for the operational period from October 2015 through March 2016. The SVE system consists of a network of vapor extraction wells (Table 1) connected through a series of transmission pipelines and valves, (referred to as the vapor collection system) across the northern portions of the Village of Hartford (Hartford Site). The vapor colllection system connects to a single 12-inch pipeline (referred to as the Main Header) near the intersection of North Olive and East Elm Streets that extends to the east beneath the railroad right-of-way to a series of four thermal oxidizers located on the Premcor Refinery (referred to as the thermal treatment system). Figure 1 shows the general location of the SVE extraction wells and transmission piping, as well as the SVE Effectiveness Zones (Zones 1 through 6) established for the purpose of evaluating the system performance. Extraction well completion details are summarized on Table 1. Appendix A contains the piping and instrumentation diagrams for the SVE system.

The Hartford Working Group had operated the SVE system including the vapor collection and thermal treatment components since 2005, with the exception of the period from mid-2009 to September 2013, during which Apex Oil Company, Inc. (Apex) was responsible for OMM of the vapor colllection system components only. On September 18, 2014, the United States Environmental Protection Agency (USEPA) sent Apex and the Hartford Working Group a letter describing reassignment of activities at the Hartford Site, which included OMM of the SVE system. Apex assumed OMM of the collection system components in April 2015 and operation of the thermal treatment system in June 2015. Apex submitted the draft *Vapor Collection System Operation, Maintenance, and Monitoring Plan, Hartford Petroleum Release Site, Hartford, Illinois* (*VCS OMM Plan*) to the USEPA on June 10, 2015. The *VCS OMM Plan* (Trihydro 2015) was finalized on September 4, 2015; incorporating the USEPA comments (dated July 24, 2015) and Apex's response (dated August 20, 2015). The following additional plans were also adhered to following transition of the vapor collection system components from the Hartford Working Group on April 1, 2015:

- Regional effectiveness monitoring, which includes quarterly screening within selected locations was performed in accordance with the *Effectiveness Monitoring Plan, Hartford Hydrocarbon Plume Site, Hartford, Illinois* (URS 2014c).
- In-home monitoring, including weekly and quarterly screening of indoor air and sub-slab soil vapor within select homes across the Hartford Site, was performed in accordance with the final

Interim In-Home Effectiveness Monitoring Plan, Hartford Petroleum Release Site, Hartford, Illinois (Trihydro 2014).

- River stage triggered monitoring was performed in accordance with the triggers and methods described in the final *Interim In-Home Effectiveness Monitoring Plan (Trihydro 2014)*, as well as the *System Operation and Maintenance Response to River Rise, Groundwater Related and Sub-slab Triggers, Hartford Area Hydrocarbon Plume Site* (URS 2014b).

1.1. SVE SYSTEM CONFIGURATION

The SVE system was installed during three separate phases. As summarized on Table 1, there were 116 extraction wells considered to be part of the vapor extraction systemand 28 wells that were not considered to be part of the SVE system during the reporting period. The following is a summary of the wells that were not considered to be a part of the system:

- Wells HSVE-002S, HSVE-002D, HSVE-011S, HSVE-011D, HSVE-025S, HSVE-026S, and HSVE-027S were previously plugged and abandoned.
- Wells HSVE-005S and HSVE-005D were replaced with well HSVE-005R
- Wells HSVE-006S and HSVE-006D were replaced with well HSVE-006R. These wells remain in place but are not operated.
- Wells HSVE-006R2 and HSVE-104 were installed but never connected to the vapor colleciton system. Well HSVE-104 was connected to the SVE system in June 2017.
- Wells HSVE-008S and HSVE-008D are inoperable as the control vaults were previously removed.
- Wells HSVE-013 through HSVE-016 were installed within the Village of Hartford combined sewer line pipe bedding along East Watkins Street and no longer routinely operated.
- Well HSVE-028D is not useable due to a collapsed well screen.
- Well HSVE-031S has not been operated since installation according to historical data.
- Well HSVE-031DP is a one-inch probe collocated with well HSVE-031D and is not operated.
- Well HSVE-032H is a horizontal vapor extraction well and is not operated.
- Wells MPE-A001 through MPE-A005 were installed within the Main Sand stratum in order to conduct multiphase extraction pilot testing in Area A. These well are typically occluded and cannot be operated unless groundwater conditions within the Main Sand are unconfined and the well screens are exposed within the extraction wells.

As identified on Table 1, wells were generally installed within the shallow strata beneath the Hartford Site. Wells installed during Phases I and II were typically installed as nested pairs with an "S" indicating the shallow well and "D" identifying the deeper vapor recovery well. The shallow wells are usually screened within the North Olive stratum. The deep wells are typically screened within the Rand, Main Silt, and Main Sand strata but can have longer screen intervals that also extend into the shallower strata and clay lenses. In cases where nested wells were installed, the deep intervals generally overlap with the shallow intervals. Cross sections showing the screen interval for the extraction wells relative to the lithology and historical light non-aqueous phase liquid (LNAPL) distribution are provided in the *VCS OMM Plan* (Trihydro 2015).

The extraction wells connect to horizontal conveyance lines through a series of 32 control vaults (V1 through V32). The control vaults differ in size, but are generally larger than the extraction well vaults. Fifteen of the control vaults contain sample/vacuum ports. The horizontal conveyance lines converge within the Main Vault near the intersection of North Olive and East Elm Streets, and continue to the east, via the Main Header's single 12-inch pipeline, beneath the railroad right-of-way to the TTUs located on the Premcor Refinery. A schematic diagram of the thermal treatment system is shown on Figure 2.

System vacuum is induced using one or more of the four 75 horsepower (HP) belt drive blowers (B-1 through B-4). Typically, no more than three blowers are operated simultaneously depending on the number of extraction wells being operated and the cumulative flow rate through the SVE system. Recovered vapors are passed through a 470-gallon condensate tank followed by a 1,000-gallon aboveground vapor-liquid separator, as well as four individual 240 gallon vapor-liquid separators prior to each of the four blowers.

After passing through the vapor-liquid separators and blowers, the recovered vapor is treated via four thermal oxidizers (TO-1 through TO-4). Each thermal oxidizer has a 5 HP combustion air blower and a 7.5 HP tertiary air fan. The combustion air blower introduces ambient air to the burner that mixes with natural gas to maintain the flame. The burner creates a ring of flame around the port through which recovered vapor enters the combustion chamber. A motor operated valve on the tertiary air fan opens when the combustion temperature exceeds a high temperature set point (1,600 degrees Fahrenheit). This can occur during periods when total volatile petroleum hydrocarbon (TVPH) concentrations (including methane) in the recovered soil vapor are elevated, which last occurred during low water table conditions in February 2013. The Federally Enforceable State Operating Permit requires that the combustion temperature in each operating thermal oxidizer remains above 1,400 degrees Fahrenheit. The actual operating temperature is adjusted to approximately 1,460 degrees Fahrenheit to allow for normal temperature fluctuations. The thermal treatment system will shut down if the operating temperature drops below 1,405 degrees Fahrenheit, to eliminate the potential for a violation of the permitted temperature limits.

The individual blowers have maximum flow capacities ranging from approximately 750 to 840 standard cubic feet per minute (scfm). Each thermal oxidizer is capable of processing up to 1,000 scfm with a TVPH concentration of up to 50,000 parts per million by volume (ppmv), while achieving a destruction efficiency of 99 percent. Normally, two or three blowers and thermal oxidizers are operated to maintain the desired vapor extraction rates from the operating wells.

1.1.1. PHASE I AND II

Wells HSVE-001 through HSVE-030 were generally installed between 2004 and 2006 as part of the Phase I and Phase II modifications to the vapor collection system and consist of a 4-inch diameter well connected to 4-inch diameter conveyance line. The individual well, valves, flow meters, and sample/vacuum ports are located in a single 4-foot by 4-foot steel vault. Some of the Phase I and II wells have been modified to allow for more accurate measurement of the flowrate by installing a 4-inch by 4 inch by 2-inch tee on the well. A 2-inch diameter line is connected to the tee for field measurements. The 2-inch line then increases to 4-inches and connects to the SVE conveyance lines. Typical wellhead configuration for the extraction wells installed during Phase I and II are shown on Figure 3.

1.1.2. PHASE III

Extraction wells HSVE-031 through HSVE-104 were installed during the Phase III expansion between 2006 and 2011. Extraction wells HSVE-105 through 107 were installed as nested pairs in late 2014. The Phase III and more recent extraction wells were constructed with a small radius vault for the wellhead and a separate 4-foot by 4-foot steel control vault to house the valves, flow meter, and sample ports. The Phase III wells were installed with a 4-inch by 4-inch by 2-inch tee allowing connection of a 2-inch line that extends from the wellhead to the control vault. This 2-inch line then increases to 4-inches as it exits the control vault and connects to the SVE conveyance lines. Typical wellhead configuration for the extraction wells installed during the Phase III expansion and later are shown on Figure 3.

1.1.3. STINGERS

The SVE system was initially designed to solely recover vapor. However, after startup of the system, it was determined that groundwater levels would increase within many of the extraction wells under typical system vacuum, which led to screen occlusion and limited vapor recovery. Therefore, many of the extraction wells were retrofitted to allow for the installation of a stinger and extraction of groundwater as part of normal operations. A stinger is a small diameter hose or pipe that is inserted into the recovery well, which allows for simultaneous extraction of groundwater and soil vapor. This configuration, typically referred to as multiphase extraction (MPE), or more specifically as two phase extraction (TPE), allows for dewatering and prevents occlusion of the screen within the extraction well during system operation. As groundwater begins to rise due to the applied vacuum, both groundwater and vapor are extracted through the stinger. The depth of the stinger can be adjusted to depress the water level in the extraction well. The stinger designs, summarized on Table 1, vary from well to well but generally can be described as follows:

- Flow Tube - Flow tubes consist of a 2-inch polyvinyl chloride (PVC) stinger that is installed several feet into the 4-inch well casing. Flow tubes were only installed in the Phase I and II wells and many of the flow tubes have been replaced with Viton® Seal stingers, described below. Currently, only 13 of the extraction wells contain flow tubes.
- Straw Stinger - Several of the extraction wells were designed with a 0.5-inch flexible hose that tees from the SVE conveyance line within the well control vault into the extraction well vault. The 0.5-inch flexible hose is then extended through the well cap and into the well casing down to the upper portions of the water table, serving as a stinger. At the bottom of the flexible hose, a piece of 1-inch section of PVC pipe is connected to the flexible hose. Water is extracted using an airlift technique wherein air moving at high velocity entrains water droplets at the air-water interface and conveys them upward into the horizontal conveyance line. The terminal end of each stinger consists of a beveled tip, which allows for continued airflow at high velocity and reduces the likelihood of deadheading (i.e., no movement of air or water). Vacuum for the straw stinger and the well casing is controlled separately in this design. This same approach was used on the recently installed wells on West Birch and West Arbor Streets (HSVE-105S/D, HSVE-106S/D, and HSVE 107S/D) using a 1-inch diameter flexible hose. Currently, 17 wells have straw stingers installed.
- Viton® Seal Stingers - Viton® Seal stingers are between 0.75 and 1.5-inch diameter PVC stingers that are installed through a Viton® seal. Viton® is a chemical and heat resistant polymer that is used to create an airtight seal with the well casing and around the stinger. The Viton® seal is placed near the top of the well casing, below the tee, where vacuum is applied to the extraction

well. Similar to the straw stinger design, the stinger extends to the water table and the tip of the stinger is cut at a 45-degree angle to assist with initial mixing of air and water. All of the fluid and vapor is carried through the stinger to the top of the well above the Viton® seal and is conveyed through the 2-inch line that connects the wellhead to the control vault. Currently there are 50 wells with Viton® Seal Stingers.

Typical stinger configurations are shown on Figure 4. The current SVE system does not have an oil-water separator and LNAPL cannot not be recovered. Therefore, wells that historically or currently have measurable LNAPL are not operated with a stinger and only vapor is extracted when the water table is low enough to allow recovery.

In a subset of the extraction wells that have been retrofitted with a stinger, a port has also been installed to allow dilution air to be introduced into the casing with the intent of improving the flow of extracted vapors. Extraction wells with dilution ports are noted on Table 1.

1.2. REPORT ORGANIZATION

The remainder of this report is organized as follows:

- Section 2.0 - provides a description of the OMM activities for the vapor collection system a discussion of the system monitoring results (flow rates, mass removal rates, and effectiveness monitoring), and a summary of maintenance activities performed on the vapor collection system components during the reporting period.
- Section 3.0 - includes a summary of the thermal treatment system operation and monitoring activities conducted over the reporting period, as well as routine and non-routine maintenance items.
- Section 4.0 - describes the routine in-home monitoring results including weekly, quarterly, and river stage triggered events,

SECTION 2.0
VAPOR COLLECTION SYSTEM

This section summarizes the routine OMM activities performed on the vapor collection system components between October 2015 and March 2016. Operation of the system was conducted in accordance with the *VCS OMM Plan* (Trihydro 2015).

2.1. OPERATIONS OVERVIEW

Operation of the vapor collection system was focused on preventing vapor intrusion into structures when the groundwater table was high and was optimized for mass recovery when groundwater was below trigger elevations in the Rand stratum. During periods of high groundwater levels, the system was operated using as many of the extraction wells that are installed in the shallow stratum and currently considered part of the system. During periods of low groundwater levels, vapor extraction is generally focused on wells with total volatile petroleum hydrocarbon concentrations above 100 ppmv.

There are many conditions that may influence the operability of an extraction well including occlusion of the well screen with groundwater and reduced permeability associated with increasing water content within the vadose zone. These conditions may occur as a result of a rise in the Mississippi river stage, increase in the groundwater elevation, as well as local precipitation events. Therefore, operations within each of individual extraction wells is adjusted weekly, (including applied vacuum and stinger position) based on the routine monitoring data. In general, the operational criteria employed was as follows (based on historic operating parameters):

- Operating Vacuum: The target operating vacuum is between 80 and 120 inches of water (in-H_2O), provided that occasionally this may be reduced to prevent occlusion of the well screen and allow for extraction of soil vapor from the well.
- Flowrate: The flowrate under these operating vacuums has been between 8 and 80 scfm, which were historically used as benchmarks for operating individual wells.

In practice, given the inaccuracies associated with flowrate measurements (further discussed in Section 2.3.1), low flowrates are evaluated more closely than higher flowrates. When low (or no) flowrate is observed, further evaluation is conducted to determine the cause, such as well screen occlusion or transmission line blockage. If the flowrate cannot be increased, the well may be shut down until subsurface conditions improve or maintenance can be completed.

The *VCS OMM Plan* (Trihydro 2015) also includes operating parameters for conditions when trigger elevations are met. Once groundwater trigger conditions are present in three of the five trigger monitoring locations in the Rand stratum, extraction is generally focused at those extraction wells with higher TVPH concentrations (greater than 100 ppmv) and flowrates to optimize mass recovery. The following table provides a summary of the trigger monitoring locations and groundwater elevations:

Monitoring Location	SVE Effectiveness Zone	Trigger Elevation (ft-amsl)
MP-079B	Zone 1	406.0
MP-039B	Zone 2	409.0
HMW-044B	Zone 5	406.5
MP-053B	Zone 5	406.5
MP-029C	Zone 6	408.0

Groundwater elevations were below the trigger criteria within three of the five monitoring wells between October 12 and December 16, 2015, and again beginning on February 19, 2016 through the end of the reporting period (March 31, 2016). It is important to note that while in theory, shutting down extraction wells with low TVPH concentrations would allow focused mass removal, in practice this is not always possible as the blowers do not have variable speed capability. Therefore, some wells with lower TVPH concentrations may continue to be operated to maintain airflow within the operating blowers. To alleviate this limitation and obtain greater operational flexibility, Apex has replaced sheaves on two of the four blowers (Blower No. 1 and Blower No. 4), to allow for variation in airflow from the originally designed 750 scfm, with the current airflow as follows:

- Blower No. 1 – 850 scfm
- Blower No. 2 and 3 – 750 scfm.
- Blower No. 4 – 600 scfm

2.1.1. OPERATING WELLS

Figure 5 and Table 1 provide a summary of the percent of time that each extraction well was operating during the reporting period. As depicted, there were 32 extraction wells that were online 100% of the time and another 62 wells that were online periodically (between 7% and 91% of the time). There were 22 extraction wells that were not operated due to well screen occlusion including:

- Zone 1: HSVE-105D and HSVE-107D
- Zone 2: HSVE-044 and HSVE-045
- Zone 5: HSVE-009S, HSVE-009D,
- Zone 6: HSVE-001S, HSVE-001D, HSVE-030S, HSVE-030D, HSVE-055, HSVE-056, HSVE-057, HSVE-059, HSVE-060, HSVE-063, HSVE-065, HSVE-066, HSVE-068, HSVE-069, HSVE-073, and HSVE-075

The wells located in Zone 1 (HSVE-105D and HSVE-107D) are screened within the Main Sand stratum while the remaining wells are screened within the shallower stratum. There were four wells in Zone 6 (HSVE-001S, HSVE-001D, HSVE 030S, and HSVE 030D) and 2 wells in Zone 5 (HSVE-009S and HSVE-009D) that were inoperable due to a blockage within the horizontal transmission line connecting these wells to the SVE horizontal conveyance lines. Additionally, extraction wells HSVE-057, HSVE-059, and HSVE-060 screened in the Rand stratum and located in Zone 6 were operated between March 1 and March 11, 2016 during an enhanced TPE test as described within the revised *Soil Vapor Extraction System Effectiveness Zone 6 Optimization Report, Hartford Petroleum Release Site, Hartford, Illinois* (*Zone 6 Optimization Report,* 212 Environmental 2016). These three extraction wells were otherwise inoperable and are thusly noted as such within this report.

2.1.2. SEASONAL CONDITIONS

Figure 6 provides a graphical summary of local precipitation events, Mississippi River elevation, and groundwater elevation within the Rand stratum (measured within monitoring point MP-029C). The river stage increased sharply in mid-November 2015 and remained above 405 feet above mean sea level (ft-amsl) during the remainder of the reporting period, except for a brief period in mid-February 2016. Groundwater elevations within the Rand stratum were also generally above 405 ft-amsl and exceeded the trigger elevation (408 ft-amsl in monitoring point MP-029C) from mid-December 2015 through early-March 2016.

As the river stage and groundwater elevations increased, fewer wells became operable due to occlusion of the well screen. Significant rainfall in November 2015 through January 2016 also resulted in reduced soil gas permeability and flow within many of the extraction wells across the Hartford Site. As shown on Figure 7, the maximum number of operating extraction wells was observed during the last week of November 2015 (87 wells), while the fewest number of operating wells was observed during the second week of January 2016 (57 wells). As the river and groundwater elevations began to decrease in early March 2016, the number of wells that were operating increased. By the end of March 2016, 81 extraction wells were operating across the Hartford Site.

2.2. ROUTINE AND NON-ROUTINE MAINTENANCE

Maintenance activities performed between October 2015 and March 2016 were primarily related to stinger adjustments. Line sweeping and replacement of the valves connecting the extraction well to the vapor collection system was also conducted during the reporting period.

2.2.1. STINGERS

Adjustment and replacement of stingers was conducted weekly. Stinger positions were adjusted based on the protocol outlined on Figure 8, originally presented in the *VCS OMM Plan* (Trihydro 2015). In most cases, the stinger was raised to reduce the groundwater recovery rate and maximize vapor recovery as the groundwater elevations increased. Stingers were periodically replaced due to biofouling. Stinger adjustments are summarized in Appendix B.

2.2.2. LINE SWEEPING

Line sweeping was conducted five times during the reporting period. The water removal varied between 1,700 and 5,200 gallons per event, as summarized on Table 2. Following line sweeping, daily water recovery rates decreased but generally returned to pre-sweeping rates within three or four days. There was no noticeable increase in the system vacuum following any of the line sweeping events, although recovery within individual wells may have been improved.

2.2.3. VALVE REPLACEMENT

The valves connecting the individual wells to the transmission system occasionally leak due to normal wear attributed to exposure to water both within the wells and accumulating within the control vaults. Valves were replaced in the transmission lines connecting wells HSVE-024D (formerly had a 4-inch butterfly valve) and HSVE-099 (formerly had a 2-inch gate valve) to the system. The valves at these two extraction wells were leaking and therefore replaced with a brass 2-inch gate valve. Well HSVE-024D was reconfigured to reduce the 4-inch transmission line to 2-inch line as it was determined that for consistency, ease of operation, and cost, all replacement valves will be 2-inch diameter gate valves. Additional valve replacement will be conducted as part of the well reconfiguration activities, prioritizing those wells with the highest measured leakage. A summary of wells with leaking valves and the degree of leakage is summarized on Table 3.

2.3. ROUTINE SYSTEM MONITORING

Routine monitoring activities performed within the operating extraction wells during the reporting period included: (1) gauging fluid levels, (2) measuring vapor extraction flowrates and (3) field screening soil vapor within the individual extraction wells. Field screening was conducted by collecting soil vapor samples within a Tedlar® bag and field screening the samples for TVPH and methane concentrations using a ThermoScientific TVA1000B flame ionization detector (FID). A granulated activated carbon (GAC) filter is attached to the FID to obtain the methane concentration. The petroleum hydrocarbon concentration (PHC) is then estimated by subtracting the methane concentration from the TVPH concentration. Fixed gases (including oxygen and carbon dioxide) were also measured in soil vapor using a Landtec GEM 2000® multigas meter. Fluid levels were recorded biweekly while vapor recovery flowrate measurements and field screening of soil vapor was conducted monthly. The routine measurements collected from the extraction wells between October 2015 and March 2016 are provided in Appendix B.

2.3.1. VAPOR EXTRACTION FLOWRATE

The flowrates within each of the extraction wells were summed during each of the monthly events to estimate a total vapor extraction flowrate through the vapor collection system. This well-by-well estimate of the system flowrate is summarized in Table 4. The total flowrate through the system was also recorded daily at the Main Header. The total flowrate estimated by summing extraction rates from each well compared to the average flowrate recorded at the Main Header is provided in the following table.

Date Range	Well-by-Well Estimate of VCS Flowrate	Main Header Measured VCS Flowrate
	(scfm)	(scfm)
10/12/15-10/14/15	1,835	1,558
11/16/15-11/19/15	1,641	1,419
12/7/15-12/9/15	2,492	1,622
1/11/16-1/14/16	2,177	1,078
2/22/16-2/25/16	1,999	1,425
3/21/16-3/24/16	2,017	1,425

The total flowrate estimated by summing extraction rates from each operating well was always higher than the average flowrate measured at the Main Header. Flowrates are measured within the individual extraction wells using either: (1) a pitot tube or (2) an in-line venturi flow meter as follows:

- HSVE-001 through HSVE-030 (with the exception of HSVE-004R, HSVE-005R, HSVE-006R, and HSVE-021) – Dwyer Series 160 Straight Parallel Flow Pitot Tube
- HSVE-005R, HSVE-006R, HSVE-021, and HSVE-031 through HSVE-103 – Preso Coin-3 In-Line Venturi
- HSVE-105S, HSVE-105D, HSVE-106S, HSVE-106D, and HSVE-107S, HSVE-107D – Preso Model V-65 In-Line Venturi
- HSVE-004R – Dwyer DS-300-3 Flow Sensor

These flowrate devices are used to measure the differential pressure which is then converted to a flowrate using the following formulas provided by the manufacturer:

Dwyer Series 160 Straight Pitot Tube:

$$Q = 1096.2 * C_p * \sqrt{\frac{\Delta P * (T + 460)}{1.325 * P_{abs}}} * A * \frac{P_{abs}}{29.92} * \frac{520}{T + 460}$$

Where:

Q	=	Flowrate (scfm)
C_p	=	Pitot Tube Coefficient (0.81, unitless)
ΔP	=	Differential Pressure (in-H_2O)
T	=	Temperature (°F)
P_{abs}	=	Absolute Pressure (in-Hg)
A	=	Cross Sectional Area of Flow (ft^2)

Preso Coin-3, Preso Model V-65, and Dwyer DS-300-3

$$Q = C_1 * \sqrt{\frac{\Delta P * P_{abs}}{SG_s * (T + 460)}}$$

Where:

Q	=	Flowrate (scfm)
C_1	=	Flow Coefficient (unitless)
ΔP	=	Differential Pressure (in-H_2O)
P_{abs}	=	Absolute Pressure (pounds per square inch area)
SG_s	=	Specific Gravity – assumed to be 1 (unitless)
T	=	Temperature (°F)

The flow coefficient (C_1) for the Preso Coin-3, Preso Model V-65, and Dwyer DS-300-3 is calculated via the following equation:

$$C_1 = 128.8 * K * D_i^2 * F_a$$

Where:

K	=	Flow Coefficient: 0.286 for Coin-3 and 0.6584 for Model V-65, and 0.64 for Dwyer DS-300-3 (dimensionless)
D_i	=	Pipe Diameter (inches)
F_a	=	Thermal Expansion of Pipe – 1 up to 100°F (dimensionless)

The Dwyer Series 160 Straight Pitot Tube (used to measure flow at Phase I/II SVE wells HSVE-001 through HSVE-030, is approximately 3-feet long and designed for use within 4-inch ductwork for measuring air flow rate. Flowrate measurements estimated using the Dwyer Series 160 Straight Pitot Tube involves the insertion of a pitot tube into the well casing parallel to the flow direction. In cases where a Phase I/II well has been retrofitted with a Viton® stinger, the flowrate measurement is collected by inserting the pitot tube into the stinger. It is understood that these historical methods for collecting measurements from the Phase I and II extraction wells (particularly with respect to those wells retrofitted with a stinger) results in inaccurate flowrate measurements due to both the well configuration, as well as water present in the air stream.

The in-line Venturi devices (Preso Coin-3 In-Line Venturi and Preso Model V-65 In-Line Venturi) were not installed according to the manufacturer's recommendations, which required minimum straight length pipe to be installed on both sides of the Venturi. This improper installation leads to inaccurate flowrate measurements. Additionally, cleaning of the Venturi is labor intensive and has not been routinely performed which may result in additional inaccuracies. Finally, in many cases, there is groundwater entrained with recovered vapor. However, the flowrate calculations assume that the recovered vapor does not contain water. Entrained water will result in overestimation of the air flow rate.

2.3.2. MASS REMOVAL RATE

The mass removal rate via the SVE system (calculated in pounds per day [lbs/day]), can be estimated using the following equation (USEPA 1989):

$$Mass\ Removal\ Rate = C \times Q \times MW \times 1.581E\text{-}07\ \frac{lb - mol\ min}{\mathrm{ft^3\ ppmv\ hour}} \times 24\ hours/day$$

Where:

C = Petroleum hydrocarbon concentration in soil vapor (ppmv)

Q = Vapor extraction flowrate (scfm)

MW = Molecular weight of petroleum hydrocarbons (lb/lb-mole)

The mass removal rate for the SVE system was estimated via two approaches. The first approach involved summing the mass removal rate from each of the individual extraction wells using the following inputs:

- The petroleum hydrocarbon concentration from each extraction well, which is estimated by subtracting the methane concentration from the TVPH concentration. Methane and TVPH concentrations are measured monthly from the extraction wells using a ThermoScientific TVA1000B FID.
- The flowrate (Q) for each of the extraction wells that were operating at the time that methane and TVPH measurements were collected, as summarized on Table 4.
- The molecular weight (MW) was assumed to be 86.2 lb/lb-mole, which is the same value used by Eurofins-AirToxics (the analytical laboratory contracted for analysis of the Main Header vapor samples) for converting concentrations from volumetric based units (ppmv) to weight based units (milligrams per cubic meter [mg/m^3]).

The well specific mass removal rates were summed to estimate the total mass removal rate from the SVE system as summarized in Table 4.

The second approach for estimating the mass removal rate utilizes the petroleum hydrocarbon concentration and flowrate measured in the Main Header. Flowrate is recorded daily and soil vapor is screened weekly for TVPH and methane concentrations from the Main Header. The resultant petroleum hydrocarbon concentration and flowrate measurement collected closest in time to when field screening was conducted was used to estimate the SVE system mass recovery rate. A comparison of the total mass removal rate using these two approaches over the reporting period is provided in the following table:

	Estimated Total SVE System Mass Removal Rate (lbs/day)					
	October 2015	November 2015	December 2015	January 2016	February 2016	March 2016
Well-by-Well Approach	1,844	5,034	1,180	307	992	2,902
Main Header Approach	981	3,020	1,689	64	582	634

The mass removal rate estimated by summing the rates from each of the individual extraction wells does not correlate well with the mass removal rate calculated using measurements from the Main Header. This is primarily attributed to the inaccuracies associated with flowrate measurements as discussed in Section 2.2.1. There are several additional factors contributing to the differences in the estimated mass removals rates including:

- Leakage across extraction well control valves (summarized on Table 3) is not accounted for in the well-by-well approach but would be measured at the Main Header.
- Temporal fluctuations in the flowrate and TVPH concentrations measured in the extraction wells and Main Header, which may be difficult to capture with near instantaneous grab samples.

Irrespective of these differences, estimating mass removal rates within the individual extraction wells provides insights regarding the effectiveness of vapor recovery across a range of seasonal conditions.

2.4. REGIONAL EFFECTIVENESS MONITORING

Quarterly regional effectiveness monitoring was conducted in general accordance with the *Effectiveness Monitoring Plan* (URS 2014c) in November 2015 and February 2016. Quarterly monitoring included measuring the static pressure, conducting pneumatic tests, and gauging fluid levels within select monitoring locations. In addition, soil vapor samples were collected and field screened for TVPH, oxygen, carbon dioxide, methane, and LEL. Results from the regional effectiveness monitoring are provided in Appendix C and summarized in the following subsections.

2.4.1. FOURTH QUARTER 2015

The fourth quarter 2015 regional effectiveness monitoring was conducted between November 13 and 19, 2015 and included screening within 140 vapor monitoring points (VMP), vapor probes (VP), multipurpose monitoring points (MP), and monitoring wells (HMW). During this event, static pressure ranged from -7.39 to 0.14 in-H_2O. There were 2 locations (1%) in which a pressure was measured versus 46 locations with a vacuum (33%) and 92 locations (66%) in which there was not a pressure or a vacuum measured.

Pneumatic testing was performed to determine the competency of the monitoring locations and estimate soil gas permeability. None of the monitoring locations were compromised based on the pneumatic test results and the soil gas permeability ranged between 1.88E-10 and 1.98E-07 cm^2. These soil gas permeabilities are indicative of silty clays to fine sands. The range of soil gas permeability measured in the regional monitoring network was lower than the range measured within the sub-slab probes (2.52E-9 to 1.95E-5 cm^2). However, there were not significant differences in the range of soil gas permeability measured in the clay units compared to the North Olive, Rand, and Main Silt stratum during the November 2015 event.

2.4.2. FIRST QUARTER 2016

First quarter 2016 regional effectiveness monitoring was conducted between February 2 through 7, 2016, and included vapor screening and pneumatic testing within 135 vapor monitoring points (VMP), vapor probes (VP), multipurpose monitoring points (MP), and monitoring wells (HMW). During this event, static pressure ranged from -8.74 to 6.00 in-H_2O. There were only 13 locations (10%) in which a pressure was measured versus 71 locations with a vacuum (52%) and 51 locations (38%) in which there was not a pressure or a vacuum measured. The soil gas permeability ranged between 3.96E-10 and 4.03E-08 cm^2 in February 2016 and were similar to those reported in November 2015.

2.5. SUMMARY OF SVE SYSTEM AND EFFECTIVENESS MONITORING

Distribution plots of TVPH and oxygen were developed using an interpolant model created in three dimensions (Leapfrog® Hydro). The model incorporated data collected from the vapor monitoring probes (VMP), vapor probes (VP), multipurpose monitoring points (MP), and monitoring wells (HMW) during quarterly effectiveness monitoring events (November 2015 and February 2016). A slicing plane was selected at a representative elevation for the North Olive Stratum (418.2 ft-amsl). Data from monitoring locations with screen intervals located within +/- 3.3 feet of the slicing plane, which represents approximately 90% of data collected within the North Olive Stratum, are represented on the TVPH and oxygen distribution plots. The estimated mass recovery for SVE wells that were operating at the time of the effectiveness monitoring event are overlain on the TVPH distribution plots to correlate mass recovery rates with TVPH distribution. The TVPH and oxygen plots for November 2015 are provided as Figures 9 and 10, respectively and for February 2016 are depicted on Figures 11 and 12, respectively.

For the November 2015 event, shown on Figure 9, TVPH concentrations were highest along the northern portions of North Olive Avenue, along West Birch and West Cherry Streets, along East Date Street, and at the east end of the alley between East Elm Street and East Forest Street. During the February 2016 effectiveness monitoring event, depicted on Figure 11, the highest TVPH concentrations were detected along the northern portions of North Olive Street, between West Birch and West Cherry Streets, and along North Olive Avenue near East Elm Street. During both events, reduced oxygen concentrations (Figures 10 and 12) were generally observed across the entire northern portions of the Village of Hartford, with the greatest reductions in oxygen in soil vapor collected at locations with elevated TVPH concentrations. These results suggest that aerobic biodegradation of volatile petroleum hydrocarbons is occurring within vadose zone beneath the Hartford Site. Locations with higher mass recovery rates are generally collocated with elevated TVPH concentrations measured in soil vapor, with two exceptions.

1. Elevated TVPH concentrations were measured in multipurpose monitoring point MP-083A located in the alley between West Birch and Cherry Streets in SVE Effectiveness Zone 1. An extraction well (HSVE-104) was previously installed adjacent to monitoring point MP-083A but was not connected to vapor collection system transmission lines. This well was connected to the vapor collection system during the second quarter 2017.
2. Elevated TVPH concentrations are observed in vapor monitoring point VMP-070 located in the alley between East Elm and Forest Streets beneath SVE Effectiveness Zone 5. Apex installed and connected an additional SVE well (HSVE-112) in this area during the second quarter 2017.

SECTION 3.0
THERMAL TREATMENT SYSTEM

The thermal treatment system consists of four positive displacement blowers (B-1 through B-4) and four associated thermal oxidizers (TO-1 through TO-4) designed to recover and treat soil vapor extracted from beneath the Hartford Site (Figure 2). The system also has infrastructure (e.g., vapor-liquid separators, frac tanks) necessary to recover and store groundwater extracted from the vapor collection system during operations. The following sections describe the general operation, as well as specific monitoring and maintenance performed during the semiannual reporting period.

3.1. OPERATIONS AND MONITORING RESULTS

Between October 1, 2015 through March 31, 2016, the system was active (i.e., extracting and treating vapor) 99.8% of the time. The system was online for approximately 4,361 hours and offline for approximately 7 hours due to scheduled maintenance and shutdowns caused by heavy rain. Two blowers and associated oxidizers were operated during the reporting period. The daily flowrate measured at the Main Header (Table 2) ranged from a minimum of 805 scfm to a maximum of 1,745 scfm, with an average of approximately 1,450 scfm. The vacuum applied to the Main Header varied from 130 to 159 in-H_2O, with an average of 150 in-H_2O vacuum.

Samples are collected weekly from the Main Header and submitted to Eurofins-AirToxics located in Folsom, California for analysis of total petroleum hydrocarbons (TPH) ranging from C2 to C10 via USEPA method TO-3, speciated volatile petroleum hydrocarbons via USEPA method TO-15, as well as methane, potential energy reported in (BTUs), and specific gravity via ASTM 1945. The mass recovery rate (in units of pounds per day) for the SVE system is estimated using the TPH laboratory analytical results and the corresponding flowrate on the day the sample was collected using the following equation (USEPA 1989):

$$M = C \times Q \times MW \times 1.581E\text{-}07 \, \frac{lb - mol \cdot min}{\mathrm{ft}^3 \cdot \mathrm{ppmv} \cdot \mathrm{hour}}$$

Where:

M	=	Mass recovery rate (pounds per hour)
C	=	TPH concentration (ppmv)
Q	=	Vapor extraction flowrate (scfm)

MW = Molecular weight of TPH (lb/lb-mole) assumed to be 86.2 lb/lb-mol

The mass recovery rate is converted to equivalent gallons per day of gasoline as follows:

$$M\left(\frac{gallons}{day}\right) = M\left(\frac{pounds}{hour}\right) * \left(\frac{24\ hours/day}{\rho}\right)$$

Where:

M = Mass recovery rate (pounds per hour or gallons per day)

P = Density of LNAPL (pounds per gallon, assumed to be 6.08)

The mass recovery rate is assumed to apply to the day the sample was collected and the days following until the next sample is collected for laboratory analysis. Hydrocarbon mass recovery rates varied from 6 to 165 gallons per day with a calculated total hydrocarbon vapor removal of approximately 12,932 gallons during the reporting period.

Figure 13 presents a comparison of the hydrocarbon mass recovery rate to the Mississippi River and groundwater elevation within the Rand stratum (as reported in monitoring point MP-029C). There is a clear inverse relationship between the groundwater elevation in the Rand stratum and hydrocarbon mass recovery rate. As described in Section 2.1.2, as the river stage and water table increased, fewer wells became operable due to well screen occlusion. Several concurrent rainfall events in November and December 2015 also resulted in reduced soil gas permeability within the shallow strata, reducing flow and mass recovery across the vapor collection system.

3.2. ROUTINE MAINTENANCE

This section describes the routine maintenance activities including recovered groundwater and accumulated sediment management, as well as routine vibration analyses performed on the blowers and motors at the thermal treatment system.

3.2.1. WATER MANAGEMENT

As discussed in Section 2.0, the SVE system was originally designed to solely recover vapor and was not designed to recover, treat, and store groundwater. Subsequent to start-up, the thermal treatment system was modified to manage the extracted water. Recovered groundwater is initially recovered in a 470-gallon condensate tank (consisting of a 24-inch diameter capped steel pipeline) installed below the Main Header where it enters the Premcor refinery (Figure 2). Accumulated groundwater in the Main Header drains into the condensate tank and is periodically pumped to an 18,000-gallon frac tank (Tank No. 1). Residual moisture in the extracted vapor is subsequently removed using a 1,000-gallon vapor-liquid separator located above ground, north of the blowers and oxidizers. The extracted vapor passes through the above ground vapor-liquid separator in a tangential flow pattern and is transferred to a 16,000-gallon frac tank (Tank No. 2) using two centrifugal electric pumps. Water removal through the condensate tank and 1,000-gallon vapor-liquid separator is effective enough that little water accumulates in the small separators (240 gallons each) installed at the inlet of each blower. The small amount of water that accumulates within the separators at each blower is transferred to Tank No. 2 as needed. Recovered groundwater within Tanks No. 1 and No. 2 are manually transferred to Tank No. 3 (a 16,000-gallon frac tank), as needed, to provide additional storage capacity. The total groundwater storage capacity is approximately 50,000 gallons.

As the maximum capacity is approached, a water sample is collected from Tank No. 3 and analyzed for volatile organic constituents, select polycyclic aromatic hydrocarbons, total lead, and ignitability. Based on the analytical results, the water is characterized as either hazardous or non-hazardous, and a discharge request is submitted to the Wood River Wastewater Treatment Plant (WRWTP). Water is then transferred to the WRWTP by tanker truck as there is no direct discharge from the TTUs to the WRWTP. A total of approximately 249,900 gallons of water was transferred to the WRWTP for treatment and disposal during seven separate events over the course of the reporting period. All of the water was characterized as non-hazardous. Daily water recovery rates varied from less than 300 gallons to 6,600 gallons. The water recovery rate is closely associated with precipitation events, groundwater elevations, as well as the stinger position within the extraction wells. Water recovery was elevated during the enhanced TPE test in March 2016 as discussed in the *Zone 6 Optimization Report* (212 Environmental 2016). Analytical reports for water samples collected from the thermal treatment system and the corresponding waste manifests for each event are provided in Appendix D.

3.2.2. SEDIMENT ACCUMULATION MANAGEMENT

Recovered groundwater contains entrained sediment that accumulates in portions of the Main Header piping, condensate tank, and vapor-liquid separator. The sediment consists primarily of clays and silts, in addition to iron scaling. The individual tanks and vapor-liquid separator, as well as a portion of the Main Header extending from North Olive Street to the below grade condensate tank are cleaned approximately every six to eight months. Sediment was removed from the below-grade condensate tank and vapor-liquid separators on February 22, 2016. The amount of sediment removed is not easily quantifiable, but is estimated at a few cubic feet. The recovered sediment and water were transferred to Tank No. 1. Sediment in Tank No. 1 is periodically removed, characterized, and disposed offsite; however, the volume of sediment accumulation during the current reporting period did not warrant such activities.

3.2.3. VIBRATION ANALYSES

Vibration analyses of the four blowers and twelve electric motors associated with the thermal treatment system have historically been performed on a quarterly basis. Sensors are placed at several defined locations on a blower or motor and record the degree and direction of vibration over a range of frequencies. The data is graphed and interpreted by the contractor performing the analyses (BRI Inc.). Vibration analyses were conducted on December 16, 2015 and March 22, 2016. A summary of the results for these two events is included in Appendix E.

The purpose of these analyses is to identify potential problems with the mechanical equipment and conduct repairs prior to a failure. Vibration analyses have also assisted in identifying the need to balance blower fans on the thermal oxidizers, which are mounted directly on the shaft of the electric motors. It should be noted that vibration analyses of the 75-HP blowers have not been particularly helpful in identifying problems prior to a failure. The positive displacement blowers normally operate with a high level of vibration and isolating subtle changes indicative of a problem is difficult. For example, the vibration analyses conducted on July 1, 2015 did not indicate any problems with Blower B-3, which incurred a bearing failure on July 22, 2015. Conversely, historical blower vibration analyses have occasionally suggested potential problems but these symptoms disappear on subsequent analyses, and/or the blowers continued to operate for thousands of hours without incident.

The vibration analyses performed in December 2015 indicated possible problems with Oxidizer TO-4 tertiary fan bearings. In response, the motor was greased and the vibration decreased on the subsequent vibration analyses. The vibration analyses on March 22, 2016 indicated slightly excessive vibration on Oxidizer TO-1 tertiary and combustion fans and Oxidizer TO-2 tertiary fan. The motors were greased and vibration trends will be monitored. If the vibration on the fans do not decrease, balancing of the fans is recommended to avoid bearing damage.

3.3. NON-ROUTINE MAINTENANCE

There was no non-routine maintenance performed during the reporting period.

SECTION 4.0
IN-HOME MONITORING

This section summarizes the routine in-home monitoring activities and river stage triggered events performed at the Hartford Site between October 2015 and March 2016. Routine in-home monitoring is conducted on a weekly and quarterly basis within select structures, and river stage triggered events result in in-home monitoring at structures previously identified as vulnerable during high river stage conditions.

4.1. ROUTINE IN-HOME MONITORING

Routine in-home monitoring activities have been conducted in accordance with the final *Interim In-Home Effectiveness Monitoring Plan* (Trihydro 2014) to determine the effectiveness of mitigation measures in preventing migration of volatile petroleum related constituents into structures at the Hartford Site. A summary of the structures monitored as part of routine and river stage triggered events is provided on Table 5 and shown on Figure 14. Indoor air is field screened for TVPH and the lower explosive limit (LEL). Pressure measurements are recorded within the sub-slab soil vapor probes and soil vapor is field screened for TVPH, LEL, and oxygen concentrations. If TVPH concentrations exceed 10 ppmv within indoor air or 350 ppmv within the sub-slab probe, then: (1) a soil vapor sample is collected within a Tedlar® bag for additional field screening, and (2) indoor air and soil vapor samples may also be collected for laboratory analysis. The vapor intrusion pathway decision flowchart is depicted on Figure 15. The following sections summarize the interim in-home effectiveness monitoring results from weekly and quarterly monitoring activities conducted between October 1, 2015 and March 31, 2016.

4.1.1. WEEKLY

Twelve structures (previously documented as having a completed vapor intrusion pathway) had been identified for weekly in-home monitoring (Trihydro 2014). However, in April 2015, the owner of 125 West Birch Street and 125 West Birch Street (Rear) indicated that access to these structures would no longer be permitted on a weekly basis. In addition, weekly in-home monitoring was discontinued at 119 West Cherry Street per request from the homeowner in July 2015. The owners of these three structures have agreed to allow access during quarterly and river stage triggered monitoring events. The USEPA and Illinois EPA were provided notification of the change in monitoring frequency at the two structures on West Birch Street and the structure on West Cherry Street on April 22, 2015 and July 13, 2015, respectively.

A summary of the results from weekly in-home effectiveness monitoring collected between October 1, 2015 and March 31, 2016 are provided in Appendix F. The summary table included in Appendix F only includes results from a structure when TVPH concentrations were measured in at least one indoor air or soil vapor sample. If all the screening results were measured at 0.0 ppmv, then the indoor air and sub-slab field screening results for that weekly event were omitted from the summary table. The weekly monitoring results can be summarized as follows:

- TVPH was not detected (or in other words was measured at 0.0 ppmv) in indoor air and sub-slab soil vapor at any time during the reporting period within four structures including 119 West Date Street, 504 North Delmar, 516 North Delmar, and 715 North Delmar.
- TVPH was detected in indoor air eight times at 129 West Birch Street without a corresponding reading in the sub-slab vapor probes within the structure. The measured TVPH concentrations in indoor air did not exceed 10 ppmv and was attributed to alternate sources within the structure since TVPH was not detected at any time in the sub-slab vapor probes. Alternate sources could include but are not limited to leaks within natural gas lines, sewer gas present within the structure, cigarette smoke, cleaners, and ambient sources in outdoor air.
- TVPH was detected in a single sub-slab vapor probe (SS-3) located within 107 West Birch Street during a single in-home screening event (February 10, 2016). The TVPH concentration measured within the sub-slab vapor probe was 1.0 ppmv, and did not correlate to an increase in the elevation of the Mississippi River. TVPH was not detected in indoor air at 107 West Birch Street at any time during the reporting period.
- TVPH was measured at least once in indoor air and the sub-slab vapor probes within three structures over the reporting period including 117 West Birch Street, 507 North Olive Street, and 610 North Old St. Louis Avenue.
    - TVPH was consistently detected in indoor air at 117 West Birch Street (16 weekly events during the reporting period); however, in only three instances was TVPH concurrently detected within the sub-slab. These detections in the sub-slab occurred on October 28, 2015, November 11, 2015, and January 6, 2016. The sub-slab detections of TVPH in October and November did not coincide with a significant increase in river stage; however, the sub-slab detection of TVPH in January occurred during river stage triggered monitoring event EMBP-28. TVPH concentrations did not exceed the action level for indoor air (10 ppmv) and sub-slab vapor (350 ppmv) at any time during the reporting period. The consistent detection of TVPH in indoor air without corresponding sub-slab measurements has been attributed to alternate sources identified within the basement of

the structure. The alternate sources include the furnace, animal urine and feces, laundry detergent, and various cleaners that are stored in the basement.

- TVPH was detected repeatedly within at least one sub-slab vapor probe (22 weekly events) installed at 507 North Olive Street during the reporting period. In general, TVPH was predominantly measured within probes SS-3 and SS-4; however, between February 10 and 17, 2016, there was a single detection in probe SS-1 and two detections in probe SS-2, which coincided with the highest TVPH concentrations detected in sub-slab vapor probe SS-4 (200 ppmv). TVPH concentrations were only detected in indoor air on February 10, 2016 over the reporting period. These detections did not coincide with an increase in river stage or significant precipitation event. TVPH concentrations measured at 507 North Olive Street did not exceed action levels in indoor air or soil vapor at any time during the reporting period. The consistent presence of TVPH within the sub-slab probes at 507 North Olive Street is attributed to operation of the sub-slab depressurization system. The suction pit for the system is located adjacent to sub-slab probes SS-3 and SS-4. In March 2016, the operating vacuum for the sub-slab depressurization system was reduced. Following the adjustment, TVPH concentrations decreased within each of the sub-slab probes.
- TVPH was detected in indoor air at 610 North Old St. Louis Avenue during nine weekly screening events; however, only four of these instances coincided with a detection in at least one sub-slab vapor probe. TVPH has been previously detected in indoor air within the structure and has been associated with the natural gas furnace. Three of the four detections of TVPH in the sub-slab probes occurred during or immediately following a river stage triggered monitoring event (EBMP-27 and EBMP-28). TVPH concentrations measured within 610 North Old St. Louis Avenue did not exceed action levels in indoor air or soil vapor at any time during the reporting period.

Overall the weekly in-home effectiveness monitoring results demonstrate that the mitigation measures (primarily operation of the SVE system) were effective at preventing migration of volatile petroleum related constituents into the structures that were sampled during this semiannual period.

4.1.2. QUARTERLY

Quarterly in-home effectiveness monitoring was conducted at the Hartford Site in November 2015 and February 2016, in accordance with the final *Interim In-Home Effectiveness Monitoring Plan* (Trihydro 2014). A summary of the field screening results from the two quarterly in-home effectiveness monitoring events is provided in Appendix G-1. The summary table included in Appendix G-1 only includes results from a structure when TVPH was detected in at least one indoor air or soil vapor sample. If all the screening results were measured at 0.0 ppmv, then the indoor air and sub-slab field screening results for that event were omitted from the summary table. The quarterly field screening results can be summarized as follows:

- In November 2015, quarterly in-home effectiveness monitoring was conducted within 40 structures. TVPH concentrations measured during the quarterly screening event did not exceed action levels in indoor air or soil vapor within any structures. TVPH was detected in at least one measurement of indoor air and/or sub-slab vapor within ten structures during the monitoring event. Three structures had detections in indoor air that coincided with detections in the sub-slab probes including 117 West Birch Street, 119 West Birch Street, and 610 North Old St. Louis Avenue. As discussed in Section 4.1.1, TVPH detections at 117 West Birch Street and 610 North Old St. Louis are attributed to alternate sources identified within these structures. 119 West Birch Street is a duplex connected to 117 West Birch Street with a shared basement. As such, the alternate sources identified in 117 West Birch Street also influences the indoor air within 119 West Birch Street. The remaining six structures where TVPH was detected only in indoor air did not have concentrations that exceeded 10 ppmv, and the readings were attributed to alternate sources within the structures. TVPH was detected in sub-slab vapor probes within 507 North Olive Street without any detections in indoor air, and are attributed to operation of the sub-slab depressurization system, as described in Section 4.1.1.
- In February 2016, quarterly in-home effectiveness monitoring was conducted in 29 structures. During this event, TVPH was detected in indoor and/or sub-slab vapor probes within five structures. Only one structure, 507 North Olive Street, had TVPH detected in both indoor air and sub-slab vapor probes, attributed to operation of the sub-slab depressurization system, as discussed in Section 4.1.1. Three of the remaining four structures (107 West Birch Street, 119 West Birch Street, and 126 East Elm Street) did not have TVPH concentrations that exceeded action levels in indoor air or soil vapor. TVPH concentrations exceeded the action level at a single sub-slab probe (SS-2) within 309 North Olive Street on February 8, 2016. A soil vapor sample was collected in the a Tedlar® bag and the elevated TVPH concentrations were confirmed. Following adjustments to soil vapor extraction well HSVE-084 located on North Olive Street adjacent to 309 North Olive Street, the TVPH concentration within the sub-slab probe decreased below the action level within hours of the initial reading. The USEPA and Illinois EPA were provided notification regarding the elevated sub-slab reading within the structure on February 9, 2016. In response to the elevated reading, additional vapor screening was conducted

within the structure, as well as within an adjacent structure, 135 East Forest Street. TVPH was not detected in indoor air or sub-slab vapor within the adjacent structure on February 10, 2016. A final measurement within the sub-slab vapor probe at 309 North Olive Street was conducted on February 11, 2016, and the TVPH concentration was 0.0 ppmv.

In addition to field screening, static pressure was recorded and pneumatic tests were performed within each of the sub slab vapor probes during the quarterly effectiveness monitoring events. Pneumatic testing consists of measuring the differential pressure within the probe over increasing vapor extraction rates. A vacuum was imposed upon the probe inducing a flow rate low enough to minimize line losses (0.1, 0.2, and 0.5 liters per minute). The pneumatic test results are used to calculate the soil gas permeability and specific capacity of the material beneath the structure using equations provided in Johnson et al. (1990). Appendix G-2 provides a summary of the static pressure, soil gas permeability, and specific capacity estimates for the sub-slab probes tested within each of the structures during the quarterly events.

During the two quarterly monitoring events, static pressure ranged from -0.33 to 0.23 in-H_2O. A pressure was only recorded within 2 of the sub-slab probes (approximately 1% of the measurements), while a vacuum was reported in 38 of the probes (17%) during the two events. The soil gas permeability ranged between 2.52E-09 and 1.95E-05 square centimeters (cm^2) and specific capacities ranged from approximately -166.65 to -0.03 cubic centimeters per second per inch of water ($cm^3/s \cdot in\ H_2O$). These results indicate that the materials located beneath structures at the Hartford Site range from fine grained mixtures of sand, silt, and clay (likely the A Clay) to clean sand and gravel mixtures (likely a fill material). Soil gas permeability measured in the sub-slab probes was generally consistent between the two quarterly monitoring events (generally no more than an order of magnitude increase or decrease between the two events). Changes in soil gas permeability are typically associated with changes in moisture content within the sediment or fill beneath a structure.

Overall the weekly in-home effectiveness monitoring results demonstrate that the mitigation measures (primarily operation of the SVE system) were effective at preventing migration of volatile petroleum related constituents into the structures that were sampled during this semiannual period. The data collected from 309 North Olive Street suggest that more rapid adjustments to the vapor extraction wells and stingers (as outlined on Figure 8) should be made when there are significant changes in the Mississippi River and groundwater elevation within the Rand stratum.

4.2. RIVER STAGE TRIGGERED MONITORING

Vapor intrusion events at the Hartford Site have been positively correlated with a rapid increase in the Mississippi River stage and advective movement of volatile petroleum related constituents associated with increasing groundwater elevations (Trihydro 2014). A river stage triggered event has previously been defined to occur when the elevation in the Mississippi River is equal to or greater than 410 ft-amsl (corresponds to a river stage of 14.5 feet) followed by an additional 2-foot rise over a 24-hour period. During a river stage triggered event, additional in-home monitoring is performed (as permitted) within the 34 structures (provided on Table 5) in accordance with the final *Interim In-Home Effectiveness Monitoring Plan* (Trihydro 2014) to evaluate whether vapor intrusion is occurring and to allow for adjustments to the SVE system.

Three river stage triggered monitoring events occurred during the reporting period, EBMP-26, EBMP-27, and EBMP-28. A summary of the monitoring results collected during the three river stage triggered events are provided in Appendix H. The summary table included in Appendix H only includes results from a structure when TVPH was detected in at least one indoor air or soil vapor sample. If all the screening results were measured at 0.0 ppmv, then the indoor air and sub-slab field screening results for that structure were omitted from the summary table.

4.2.1. EBMP-26

Between November 28 and 29, 2015, the Mississippi River stage increased from 14.50 to 16.65 feet within a 24-hour period. In response, river stage triggered monitoring event EBMP-26 was conducted between December 1 and 7, 2015 within 30 structures. TVPH concentrations were detected in indoor air within nine structures. None of the measurements exceeded the action level of 10 ppmv, with the highest concentration observed in indoor air within 111 West Date Street (4.2 ppmv). TVPH was detected in at least one sub-slab vapor probe within six structures. TVPH concentrations did not exceed the action levels at any sub-slab vapor probes during the event with the highest concentration observed within sub-slab vapor probe SS-4 at 507 North Olive Street (110 ppmv). This TVPH concentration was attributed to the SSDS system located beneath the structure. The suction pit for the SSDS is located adjacent to sub-slab probes SS-3 and SS-4, where the highest TVPH concentrations were measured during the event.

Groundwater recovery via the SVE system increased from approximately 1,400 gallons per day to 1,900 gallons per day during EBMP-26. Conversely, recovery of volatile hydrocarbons via the SVE system decreased from approximately 122 gallons per day in early June to less than 93 gallons per day during the river stage triggered event (Table 2). The increased water recovery and decreased vapor recovery rates are attributed to increased soil moisture and groundwater elevations (in each of the water bearing zones) associated with several precipitation events and an increasing Mississippi River stage. Based on the in-home monitoring results collected during EBMP-26, the elevated soil moisture content and high groundwater conditions were also limiting migration of volatile petroleum hydrocarbons within the vadose zone beneath structures at the Hartford Site.

4.2.2. EBMP-27

On December 14 and 15, 2015, the Mississippi River stage measured at the Mel Price Lock and Dam increased from 14.59 to 16.74 feet within a 24-hour period. In response, river stage triggered monitoring event EBMP-27 was conducted between December 15 and 19, 2015 within 26 structures. Following the conclusion of river stage triggered monitoring event EBMP-26, subsurface conditions remained unchanged. As such, Apex requested a reduced scope for in-home monitoring during EBMP-27. The USEPA approved the request on December 15, 2015, and in-home monitoring was conducted for only five days within as many structures as would provide access during the event. TVPH was detected in indoor air within seven structures. None of the measurements exceeded the action level of 10 ppmv, with the highest concentration observed in indoor air within 610 North Old St. Louis Avenue (7.0 ppmv). TVPH was detected in at least one sub-slab vapor probe within three structures. TVPH concentrations did not exceed the action levels at any sub-slab vapor probes during the event with the highest concentration observed within sub-slab vapor probe SS-3 at 507 North Olive Street (28.0 ppmv). This TVPH concentration was attributed to the SSDS system located beneath the structure. The suction pit for the SSDS is located adjacent to sub-slab probes SS-3 and SS-4, where the highest TVPH concentrations were measured during the event. The operating vacuum for the sub-slab depressurization system was subsequently decreased.

Daily groundwater recovery ranged between 1,400 and 1,600 gallons per day and vapor recovery was estimated at 72 gallons per day during EBMP-27. The data collected during this river stage triggered event continued to show that elevated soil moisture content and high groundwater conditions were limiting vapor transport into structures, as well as volatile petroleum hydrocarbon recovery via the SVE system.

4.2.3. EBMP-28

On December 25 and 26, 2015, the Mississippi River stage increased from 21.15 to 23.15 feet within a 24-hour period, and continued to rise to greater than 35 feet on January 1, 2016. The increase in river stage was caused by significant precipitation across the region, as well as locally within the Village of Hartford, which measured approximately 8.0 inches between December 28 and 29, 2015. The river stage triggered monitoring event began less than one week following the conclusion of EBMP-27. As such, Apex requested a reduced scope for in-home monitoring during EBMP-28, which included a single screening event within seventeen proposed structures. The USEPA approved the request on December 29, 2015, and in-home monitoring was conducted on January 6, 2016. TVPH concentrations were measured in indoor air within three structures. None of the measurements exceeded the action level of 10 ppmv, with the highest concentration observed in indoor air within 610 North Old St. Louis Avenue (4.1 ppmv). TVPH was detected in at least one sub-slab vapor probe within five structures. TVPH concentrations did not exceed the action levels at any sub-slab vapor probes during the event with the highest concentration observed within sub-slab vapor probe SS-1 at 117 West Birch Street (26.0 ppmv).

During the river stage triggered monitoring event, daily groundwater recovery increased from 1,900 gallons per day on December 25, 2015 to a maximum of 6,600 gallons per day on December 29, 2015. During EBMP-28, vapor recovery decreased sharply to 10 gallons per day and remained low for several weeks following the conclusion of the event. The data collected during this river stage triggered event continued to show that elevated soil moisture content and high groundwater conditions were limiting vapor transport into structures, as well as volatile petroleum hydrocarbon recovery via the SVE system.

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TABLES

TABLE 1. EXTRACTION WELL AND STINGER DETAIL SUMMARY

HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location	Zone	Shallow/ Deep	Stratum	Considered Part of System[1]	Operation during Reporting Period	Line Sweeping	Top of Screen	Bottom of Screen	Screen Length	Stinger Type	Stinger Diameter	Flow Meter Type	Dilution Port Present?
				(Y/N)	(%)	(Y/N)	(ft-btoc)	(ft-btoc)	(feet)		(inches)		(Y/N)
HSVE-001D	Zone 6	Deep	N. Olive	Y	0%	N	5.76	15.76	10.00	Flow Tube	2.0	Pitot Tube	N
HSVE-001S	Zone 6	Shallow	N. Olive	Y	0%	N	6.69	11.09	4.40	Flow Tube	2.0	Pitot Tube	N
HSVE-002D	Zone 1	Deep	Multiple Strata	N					PLUGGED AND ABANDONED				
HSVE-002S	Zone 1	Shallow	N. Olive	N					PLUGGED AND ABANDONED				
HSVE-003D	Zone 1	Deep	Multiple Strata	Y	65%	Y	6.77	26.17	19.40	Flow Tube	2.0	Pitot Tube	N
HSVE-003S	Zone 1	Shallow	N. Olive	Y	100%	Y	6.56	16.06	9.50	None	--	Pitot Tube	N
HSVE-004D	Zone 1	Deep	Multiple Strata	Y	100%	N	6.67	26.07	19.40	None	--	Pitot Tube	N
HSVE-004R	Zone 1	Deep	Multiple Strata	Y	100%	Y	9.54	34.54	25.00	Viton Stinger	1.0	In-Line Pitot Tube	N
HSVE-004S	Zone 1	Shallow	N. Olive	Y	100%	N	6.56	16.06	9.50	None	--	Pitot Tube	N
HSVE-005D[2]	Zone 2	Deep	Multiple Strata	N	0%	N	6.69	26.09	19.40	None	--	Pitot Tube	N
HSVE-005R	Zone 2	Deep	Rand	Y	100%	Y	11.20	19.07	7.87	Viton Stinger	1.0	Venturi	N
HSVE-005S[2]	Zone 2	Shallow	N. Olive	N	0%	N	5.81	10.31	4.50	None	--	Pitot Tube	N
HSVE-006D[3]	Zone 2	Deep	Rand	N	0%	N	6.74	26.14	19.40	None	--	Pitot Tube	N
HSVE-006R	Zone 2	Deep	Main Sand	Y	42%	N	27.12	31.12	4.00	None	--	Venturi	N
HSVE-006R2[4]	Zone 2	Deep	Multiple Strata	N	0%	N	9.72	34.72	25.00	None	--	Pitot Tube	N
HSVE-006S[3]	Zone 2	Shallow	A Clay	N	0%	N	6.27	10.67	4.40	None	--	Pitot Tube	N
HSVE-007D	Zone 5	Deep	Multiple Strata	Y	64%	Y	6.74	26.14	19.40	Flow Tube	2.0	Pitot Tube	N
HSVE-007S	Zone 5	Shallow	N. Olive	Y	100%	N	4.76	9.26	4.50	Flow Tube	2.0	Pitot Tube	N
HSVE-008D[5]	Zone 5	Deep	Multiple Strata	N	0%	N	6.75	26.15	19.40	None	--	Pitot Tube	N
HSVE-008S[5]	Zone 5	Shallow	N. Olive	N	0%	N	6.61	11.01	4.40	None	--	Pitot Tube	N
HSVE-009D	Zone 5	Deep	Rand	Y	0%	N	6.73	26.13	19.40	None	--	Pitot Tube	N
HSVE-009S	Zone 5	Shallow	A Clay	Y	0%	N	5.74	10.24	4.50	Flow Tube	2.0	Pitot Tube	N
HSVE-010D	Zone 5	Deep	Multiple Strata	Y	87%	N	6.70	26.10	19.40	Flow Tube	2.0	Pitot Tube	N
HSVE-010S	Zone 5	Shallow	N. Olive	Y	35%	N	7.83	12.33	4.50	None	--	Pitot Tube	N
HSVE-011D	Zone 5	Deep	Multiple Strata	N					PLUGGED AND ABANDONED				
HSVE-011S	Zone 5	Shallow	N. Olive	N					PLUGGED AND ABANDONED				
HSVE-012D	Zone 4	Deep	Main Silt	Y	100%	N	6.74	26.14	19.40	Viton Stinger	1.0	Pitot Tube	N
HSVE-012S	Zone 4	Shallow	N. Olive	Y	23%	N	5.66	15.16	9.50	None	--	Pitot Tube	N
HSVE-013[6]	Zone 4	Shallow	Backfill	N	0%	N	6.09	10.49	4.40	None	--	Pitot Tube	N
HSVE-014[6]	Zone 4	Shallow	Backfill	N	0%	N	5.14	9.54	4.40	None	--	Pitot Tube	N
HSVE-015[6]	Zone 4	Shallow	Backfill	N	0%	N	3.59	7.99	4.40	None	--	Pitot Tube	N
HSVE-017[6]	Zone 4	Shallow	Backfill	N	0%	N	0.92	5.32	4.40	None	--	Pitot Tube	N
HSVE-017D	Zone 4	Deep	Multiple Strata	Y	93%	N	6.63	26.03	19.40	Flow Tube	2.0	Pitot Tube	N
HSVE-017S	Zone 4	Shallow	A Clay	Y	41%	Y	5.50	10.20	4.70	Flow Tube	2.0	Pitot Tube	N
HSVE-018D	Zone 4	Deep	Multiple Strata	Y	84%	N	6.62	26.02	19.40	None	--	Pitot Tube	N
HSVE-018S	Zone 4	Shallow	A Clay	Y	67%	Y	5.52	10.22	4.70	None	--	Pitot Tube	N
HSVE-019D	Zone 4	Deep	Multiple Strata	Y	90%	N	6.66	26.06	19.40	None	--	Pitot Tube	N
HSVE-019S	Zone 4	Shallow	N. Olive	Y	68%	Y	4.19	8.89	4.70	Viton Stinger	1.5	Pitot Tube	N
HSVE-020D	Zone 1	Deep	Multiple Strata	Y	65%	Y	5.68	25.18	19.50	None	--	Pitot Tube	N
HSVE-020S	Zone 1	Deep	N. Olive	Y	100%	Y	5.69	14.49	8.80	None	--	Pitot Tube	N
HSVE-021	Zone 3	Deep	Multiple Strata	Y	100%	Y	6.99	26.39	19.40	None	--	Pitot Tube	N
HSVE-022	Zone 5	Deep	Main Silt	Y	100%	N	6.26	25.76	19.50	Flow Tube	2.0	Pitot Tube	N

Location	Zone	Shallow/ Deep	Stratum	Considered Part of System[1]	Operation during Reporting Period	Line Sweeping	Top of Screen	Bottom of Screen	Screen Length	Stinger Type	Stinger Diameter	Flow Meter Type	Dilution Port Present?
				(Y/N)	(%)	(Y/N)	(ft-btoc)	(ft-btoc)	(feet)		(inches)		(Y/N)
HSVE-023D	Zone 1	Deep	Multiple Strata	Y	67%	Y	6.51	25.91	19.40	None	--	Pitot Tube	N
HSVE-023S	Zone 1	Shallow	N. Olive	Y	93%	N	6.47	15.97	9.50	Flow Tube	2.0	Pitot Tube	N
HSVE-024D	Zone 1	Deep	Multiple Strata	Y	100%	N	6.58	25.98	19.40	Flow Tube	2.0	Pitot Tube	N
HSVE-024S	Zone 1	Shallow	N. Olive	Y	100%	N	7.51	17.01	9.50	Flow Tube	2.0	Pitot Tube	N
HSVE-025D	Zone 1	Deep	Multiple Strata	Y	100%	Y	6.77	26.37	19.60	Viton Stinger	1.0	Pitot Tube	N
HSVE-025S	Zone 1	Shallow	N. Olive	N					PLUGGED AND ABANDONED				
HSVE-026D	Zone 1	Deep	Multiple Strata	Y	90%	Y	6.53	26.13	19.60	Viton Stinger	1.0	Pitot Tube	N
HSVE-026S	Zone 1	Shallow	N. Olive	N					PLUGGED AND ABANDONED				
HSVE-027D	Zone 1	Deep	Rand	Y	46%	N	19.16	25.66	6.50	Viton Stinger	1.0	Pitot Tube	N
HSVE-027S	Zone 1	Shallow	N. Olive	N					PLUGGED AND ABANDONED				
HSVE-028D[7]	Zone 5	Deep	Rand	N	0%	N	18.12	24.62	6.50	None	--	Pitot Tube	N
HSVE-028S	Zone 5	Shallow	N. Olive	Y	100%	N	7.14	11.64	4.50	Viton Stinger	1.0	Pitot Tube	N
HSVE-029D	Zone 5	Deep	Rand	Y	100%	N	18.62	25.12	6.50	Viton Stinger	1.0	Pitot Tube	N
HSVE-029S	Zone 5	Shallow	N. Olive	Y	71%	N	7.63	13.13	5.50	None	--	Pitot Tube	N
HSVE-030D	Zone 6	Deep	Rand	Y	0%	N	18.72	24.22	5.50	Viton Stinger	1.0	Pitot Tube	N
HSVE-030S	Zone 6	Shallow	N. Olive	Y	0%	N	7.38	12.88	5.50	Viton Stinger	1.5	Pitot Tube	N
HSVE-031D	Zone 3	Deep	Main Silt	Y	100%	N	14.07	23.56	9.49	None	--	Venturi	N
HSVE-031DP[8]	Zone 3	Deep	Main Silt	N	0%	N	14.05	23.53	9.48	None	--	--	N
HSVE-031S[9]	Zone 3	Shallow	A Clay	N	0%	N	6.09	8.09	2.00	None	--	Venturi	N
HSVE-032H[10]	Zone 6	Shallow	Backfill	N	0%	N	11.02	11.02	--	None	--	--	N
HSVE-033	Zone 3	Deep	Main Silt	Y	71%	N	13.61	21.09	7.48	None	--	Venturi	N
HSVE-034	Zone 3	Deep	Main Silt	Y	90%	Y	12.44	21.95	9.51	None	--	Venturi	N
HSVE-035	Zone 2	Deep	Main Silt	Y	71%	Y	15.52	25.13	9.61	None	--	Venturi	N
HSVE-036	Zone 2	Deep	Main Silt	Y	90%	Y	12.15	24.68	12.53	Viton Stinger	1.0	Venturi	N
HSVE-037	Zone 2	Deep	Main Silt	Y	100%	Y	12.81	22.32	9.51	None	--	Venturi	N
HSVE-038	Zone 2	Deep	Main Silt	Y	100%	N	12.18	21.70	9.52	None	--	Venturi	N
HSVE-039	Zone 2	Deep	Main Silt	Y	54%	Y	14.13	23.65	9.52	Viton Stinger	1.0	Venturi	N
HSVE-040	Zone 2	Deep	Main Silt	Y	100%	N	14.69	24.19	9.50	Viton Stinger	1.5	Venturi	N
HSVE-041	Zone 2	Deep	Main Silt	Y	90%	Y	14.86	23.43	8.57	Viton Stinger	1.0	Venturi	N
HSVE-042	Zone 2	Deep	Main Silt	Y	100%	N	16.47	25.00	8.53	Viton Stinger	1.0	Venturi	N
HSVE-043	Zone 2	Deep	Rand	Y	15%	N	17.31	21.79	4.48	None	--	Venturi	N
HSVE-044	Zone 2	Deep	Rand	Y	0%	N	19.00	22.51	3.51	None	--	Venturi	N
HSVE-045	Zone 2	Deep	Rand	Y	0%	N	19.19	23.67	4.48	None	--	Venturi	N
HSVE-047	Zone 2	Deep	Rand	Y	80%	N	16.19	20.68	4.49	Viton Stinger	1.0	Venturi	N
HSVE-048	Zone 2	Deep	Main Silt	Y	100%	Y	16.95	26.47	9.52	Viton Stinger	1.0	Venturi	N
HSVE-049	Zone 2	Deep	Main Silt	Y	100%	N	17.04	24.64	7.60	Viton Stinger	1.0	Venturi	N
HSVE-050	Zone 2	Deep	Main Silt	Y	98%	N	14.27	23.78	9.51	Viton Stinger	1.0	Venturi	N
HSVE-051	Zone 2	Deep	Main Silt	Y	100%	N	15.02	24.54	9.52	Viton Stinger	1.5	Venturi	N
HSVE-052	Zone 5	Deep	Rand	Y	90%	Y	17.63	22.12	4.49	Viton Stinger	1.0	Venturi	N
HSVE-053	Zone 5	Deep	Rand	Y	100%	Y	16.44	20.93	4.49	Viton Stinger	1.5	Venturi	N
HSVE-054	Zone 5	Deep	Multiple Strata	Y	76%	Y	13.56	23.08	9.52	None	--	Venturi	N
HSVE-055	Zone 6	Deep	Rand	Y	0%	Y	17.41	23.96	6.55	None	--	Venturi	N

TABLE 1. EXTRACTION WELL AND STINGER DETAIL SUMMARY

HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location	Zone	Shallow/ Deep	Stratum	Considered Part of System[1]	Operation during Reporting Period	Line Sweeping	Top of Screen	Bottom of Screen	Screen Length	Stinger Type	Stinger Diameter	Flow Meter Type	Dilution Port Present?
				(Y/N)	(%)	(Y/N)	(ft-btoc)	(ft-btoc)	(feet)		(inches)		(Y/N)
HSVE-056	Zone 6	Deep	Rand	Y	0%	Y	16.57	23.12	6.55	Straw Stinger	0.5	Venturi	N
HSVE-057	Zone 6	Deep	Rand	Y	0%	N	20.46	27.07	6.61	Straw Stinger	1.0	Venturi	N
HSVE-058	Zone 6	Shallow	N. Olive	Y	79%	N	9.59	15.12	5.53	Viton Stinger	1.0	Venturi	N
HSVE-059	Zone 6	Deep	Rand	Y	0%	N	17.54	25.11	7.57	Straw Stinger	1.0	Venturi	N
HSVE-060	Zone 6	Deep	Rand	Y	0%	N	17.83	24.31	6.48	Straw Stinger	1.0	Venturi	N
HSVE-061	Zone 6	Shallow	N. Olive	Y	12%	N	11.75	16.24	4.49	Straw Stinger	0.5	Venturi	N
HSVE-062	Zone 6	Shallow	N. Olive	Y	74%	Y	6.12	9.65	3.53	Viton Stinger	1.0	Venturi	N
HSVE-063	Zone 6	Deep	Rand	Y	0%	Y	14.55	21.07	6.52	Straw Stinger	0.5	Venturi	N
HSVE-064	Zone 6	Shallow	N. Olive	Y	33%	Y	8.41	10.91	2.50	None	--	Venturi	N
HSVE-065	Zone 6	Deep	Rand	Y	0%	N	14.48	21.02	6.54	Straw Stinger	0.5	Venturi	N
HSVE-066	Zone 6	Deep	Rand	Y	0%	N	17.54	21.06	3.52	Straw Stinger	0.5	Venturi	N
HSVE-067	Zone 6	Shallow	N. Olive	Y	34%	N	8.48	12.00	3.52	Straw Stinger	0.5	Venturi	N
HSVE-068	Zone 6	Deep	Rand	Y	0%	N	17.47	20.98	3.51	Straw Stinger	0.5	Venturi	N
HSVE-069	Zone 6	Deep	Rand	Y	0%	N	18.59	22.10	3.51	Straw Stinger	0.5	Venturi	N
HSVE-070	Zone 6	Shallow	N. Olive	Y	70%	N	8.60	13.08	4.48	Viton Stinger	1.0	Venturi	N
HSVE-071	Zone 6	Deep	Rand	Y	38%	Y	17.58	25.13	7.55	Viton Stinger	1.0	Venturi	N
HSVE-072	Zone 6	Deep	Rand	Y	23%	Y	17.70	22.19	4.49	Viton Stinger	1.0	Venturi	Y
HSVE-073	Zone 6	Deep	Rand	Y	0%	N	17.55	21.07	3.52	Straw Stinger	0.5	Venturi	N
HSVE-074	Zone 6	Shallow	N. Olive	Y	37%	N	9.49	13.00	3.51	Viton Stinger	1.0	Venturi	N
HSVE-075	Zone 6	Deep	Rand	Y	0%	N	19.54	23.06	3.52	None	--	Venturi	N
HSVE-076	Zone 6	Deep	Rand	Y	12%	N	18.66	22.17	3.51	Viton Stinger	1.0	Venturi	Y
HSVE-077	Zone 6	Shallow	N. Olive	Y	100%	N	8.65	13.13	4.48	Viton Stinger	1.0	Venturi	N
HSVE-078	Zone 5	Deep	Rand	Y	60%	Y	17.55	21.08	3.53	Viton Stinger	1.0	Venturi	N
HSVE-079	Zone 5	Deep	Rand	Y	25%	N	17.23	20.75	3.52	None	--	Venturi	Y
HSVE-080	Zone 5	Shallow	N. Olive	Y	84%	N	8.67	13.16	4.49	None	--	Venturi	N
HSVE-081	Zone 5	Deep	Rand	Y	33%	N	18.42	21.94	3.52	None	--	Venturi	N
HSVE-082	Zone 5	Shallow	N. Olive	Y	100%	N	9.62	13.13	3.51	Straw Stinger	0.5	Venturi	N
HSVE-083	Zone 5	Deep	Rand	Y	100%	N	19.17	22.67	3.50	None	--	Venturi	N
HSVE-084	Zone 5	Deep	Rand	Y	40%	N	19.77	23.29	3.52	None	--	Venturi	N
HSVE-085	Zone 5	Deep	Rand	Y	90%	N	18.38	22.38	4.00	Viton Stinger	1.0	Venturi	N
HSVE-086	Zone 5	Shallow	N. Olive	Y	100%	N	8.47	12.95	4.48	Viton Stinger	1.0	Venturi	N
HSVE-087	Zone 4	Deep	Rand	Y	100%	N	18.72	23.21	4.49	Viton Stinger	1.5	Venturi	N
HSVE-088	Zone 4	Deep	Rand	Y	27%	N	20.25	22.74	2.49	Viton Stinger	1.0	Venturi	Y
HSVE-089	Zone 4	Shallow	N. Olive	Y	48%	N	8.36	14.91	6.55	Viton Stinger	1.5	Venturi	N
HSVE-090	Zone 4	Deep	Main Silt	Y	17%	N	21.36	24.88	3.52	Viton Stinger	1.0	Venturi	Y
HSVE-091	Zone 4	Deep	Main Silt	Y	32%	N	21.54	25.05	3.51	Viton Stinger	1.0	Venturi	N
HSVE-092	Zone 4	Shallow	N. Olive	Y	97%	N	9.28	13.77	4.49	Viton Stinger	1.5	Venturi	N
HSVE-093	Zone 4	Deep	Main Silt	Y	27%	N	22.54	26.05	3.51	Viton Stinger	1.0	Venturi	Y
HSVE-094	Zone 4	Deep	Main Silt	Y	18%	N	22.23	26.22	3.99	Viton Stinger	1.0	Venturi	Y
HSVE-095	Zone 4	Deep	Main Silt	Y	74%	Y	17.73	25.82	8.09	Viton Stinger	1.5	Venturi	N
HSVE-096	Zone 4	Deep	Rand	Y	78%	Y	17.83	24.83	7.00	Viton Stinger	1.5	Venturi	N
HSVE-097	Zone 4	Deep	Rand	Y	100%	Y	13.32	22.85	9.53	None	--	Venturi	N

TABLE 1. EXTRACTION WELL AND STINGER DETAIL SUMMARY
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location	Zone	Shallow/ Deep	Stratum	Considered Part of System[1] (Y/N)	Operation during Reporting Period (%)	Line Sweeping (Y/N)	Top of Screen (ft-btoc)	Bottom of Screen (ft-btoc)	Screen Length (feet)	Stinger Type	Stinger Diameter (inches)	Flow Meter Type	Dilution Port Present? (Y/N)
HSVE-098	Zone 2	Shallow	A/B Clay	Y	100%	N	6.60	10.98	4.38	Viton Stinger	0.75	Venturi	N
HSVE-099	Zone 6	Shallow	Multiple Strata	Y	89%	Y	9.08	15.37	6.29	Viton Stinger	1.0	Venturi	Y
HSVE-100	Zone 5	Shallow	N. Olive	Y	79%	Y	8.77	15.08	6.31	Viton Stinger	1.0	Venturi	N
HSVE-101	Zone 5	Shallow	N. Olive	Y	90%	N	9.11	14.92	5.81	Viton Stinger	1.5	Venturi	N
HSVE-102	Zone 1	Shallow	N. Olive	Y	91%	Y	12.60	16.60	4.00	Viton Stinger	1.0	Venturi	N
HSVE-103	Zone 1	Shallow	A/B Clay	Y	100%	Y	6.60	16.00	9.40	Viton Stinger	1.0	Venturi	Y
HSVE-104[4]	Zone 1	Deep	Multiple Strata	N	0%	N	9.65	34.65	25.00	None	--	Venturi	N
HSVE-105D	Zone 1	Deep	Main Sand	Y	0%	N	32.35	42.35	10.00	None	1.0	Venturi	N
HSVE-105S	Zone 1	Shallow	N. Olive	Y	94%	N	12.60	17.60	5.00	Straw Stinger	--	Venturi	N
HSVE-106D	Zone 1	Deep	Main Sand	Y	51%	N	29.13	39.13	10.00	Straw Stinger	--	Venturi	N
HSVE-106S	Zone 1	Shallow	N. Olive	Y	42%	N	9.16	14.16	5.00	None	1.0	Venturi	N
HSVE-107D	Zone 1	Deep	Main Sand	Y	0%	N	31.80	41.80	10.00	Straw Stinger	1.0	Venturi	N
HSVE-107S	Zone 1	Shallow	N. Olive	Y	94%	N	12.31	17.31	5.00	Straw Stinger	1.0	Venturi	N
MPE-A001[11]	Zone 5	Deep	Main Sand	N	0%	N	27.22	49.58	19.47	None	--	Venturi	N
MPE-A002[11]	Zone 5	Deep	Main Sand	N	53%	N	27.86	50.15	19.35	None	--	Venturi	N
MPE-A003[11]	Zone 5	Deep	Main Sand	N	0%	N	26.06	48.62	19.45	None	--	Venturi	N
MPE-A004[11]	Zone 5	Deep	Main Sand	N	0%	N	28.71	50.06	19.41	None	--	Venturi	N
MPE-A005[11]	Zone 5	Deep	Main Sand	N	0%	N	28.22	49.98	19.46	None	--	Venturi	N

Notes:

[1] Wells are included in the description of soil vapor extraction system provided within the *HSVE Monitoring and Maintenance Manual, Hartford Working Group* (URS 2014a).

[2] Wells were paved over during road repairs performed by the Village of Hartford. HSVE-005R was installed as a replacement well for HSVE-005S and HSVE-005D.

[3] Wells HSVE-006S and HSVE-006D were replaced with HSVE-006R but remain in place. These wells are not considered part of the SVE system.

[4] HSVE-006R2 and HSVE-104 were installed but never connected to the SVE system. Well HSVE-104 was subsequently connected to the SVE system in June 2017.

[5] The control vaults for HSVE-008S and HSVE-008D are no longer installed and as such these wells are not operable and are no longer considered part of the SVE system.

[6] These wells were installed within the combined sewer line pipe bedding along East Watkins Avenue. The sewer has been lined and operation of the wells is not typically necessary. As such these wells are not considered to be part of the SVE system.

[7] The well screen for HSVE-028D has collapsed, making this well inoperable. As such, this well is no longer considered to be part of the SVE system.

[8] HSVE-031DP is a one-inch probe collocated with well HSVE-031D and has not been operated since installation according to historical data.

[9] HSVE-031S has not been operated since installation according to the historic database.

[10] HSVE-032H is a horizontal vapor extraction well and has not been operated since installation according to historical data.

[11] Wells MPE-A001 through MPE-A005 were installed within the Main Sand stratum in order to conduct multiphase extraction pilot testing in Area A. These well are typically occluded and cannot be operated unless groundwater conditions within the Main Sand are unconfined and the well screens are exposed within the extraction wells.

(Y/N) - Yes/No

ft-btoc - feet below top of casing

-- - not applicable

TABLE 2. THERMAL TREATMENT SYSTEM OPERATIONS DATA SUMMARY

HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Date	Minimum Vacuum	Maximum Vacuum	Average Vacuum	Minimum Flowrate	Maximum Flowrate	Average Flowrate	Water Recovery Rate	Line Sweeping Volume	Analytical TPH (C2-C10) Concentration	FID TVPH Concentration	TVPH Recovery Rate[1]	Gasoline Equivalent Recovery Rate[2]	Cumulative Gasoline Equivalent Recovered
	(in-H_2O)	(in-H_2O)	(in-H_2O)	(scfm)	(scfm)	(scfm)	(gpd)	(gal)	(ppmv)	(ppmv)	(lb/hr)	(gal/day)	(gal)
10/1/2015	142	145	143	1,700	1,740	1,720	1,100	--	160	3,100	4	15	15
10/2/2015	140	157	150	1,350	1,755	1,505	1,000	--	--	3,250	--	15	30
10/3/2015	--	--	--	--	--	--	--	--	--	--	--	15	44
10/4/2015	--	--	--	--	--	--	--	--	--	--	--	15	59
10/5/2015	146	154	148	1,380	1,450	1,420	850	--	--	2,750	--	15	74
10/6/2015	146	164	150	1,350	1,480	1,450	900	--	--	3,050	--	15	89
10/7/2015	146	157	150	1,415	1,505	1,460	800	--	482	3,100	10	38	127
10/8/2015	148	155	150	1,410	1,480	1,460	800	--	--	--	--	38	165
10/9/2015	145	152	149	1,465	1,595	1,575	400	1,700	--	--	--	38	202
10/10/2015	--	--	--	--	--	--	--	--	--	--	--	38	240
10/11/2015	--	--	--	--	--	--	--	--	--	--	--	38	278
10/12/2015	146	151	148	1,520	1,560	1,545	600	--	--	--	--	38	316
10/13/2015	147	155	149	1,510	1,580	1,555	600	--	--	--	--	38	354
10/14/2015	148	153	150	1,520	1,590	1,575	500	--	709	3,500	15	60	414
10/15/2015	145	152	149	1,550	1,605	1,575	600	--	--	--	--	60	474
10/16/2015	147	153	150	1,550	1,600	1,575	500	--	--	--	--	60	534
10/17/2015	--	--	--	--	--	--	--	--	--	--	--	60	594
10/18/2015	--	--	--	--	--	--	--	--	--	--	--	60	654
10/19/2015	147	153	149	1,580	1,625	1,610	900	--	--	--	--	60	714
10/20/2015	147	153	149	1,580	1,665	1,625	1,100	--	--	--	--	60	774
10/21/2015	146	153	148	1,600	1,665	1,635	1,200	--	820	4,218	18	72	846
10/22/2015	147	151	148	1,640	1,690	1,660	1,300	--	--	--	--	72	919
10/23/2015	146	152	148	1,650	1,705	1,675	1,200	--	--	--	--	72	991
10/24/2015	--	--	--	--	--	--	--	--	--	--	--	72	1,063
10/25/2015	--	--	--	--	--	--	--	--	--	--	--	72	1,135

TABLE 2. THERMAL TREATMENT SYSTEM OPERATIONS DATA SUMMARY

HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Date	Minimum Vacuum	Maximum Vacuum	Average Vacuum	Minimum Flowrate	Maximum Flowrate	Average Flowrate	Water Recovery Rate	Line Sweeping Volume	Analytical TPH (C2-C10) Concentration	FID TVPH Concentration	TVPH Recovery Rate[1]	Gasoline Equivalent Recovery Rate[2]	Cumulative Gasoline Equivalent Recovered
	(in-H_2O)	(in-H_2O)	(in-H_2O)	(scfm)	(scfm)	(scfm)	(gpd)	(gal)	(ppmv)	(ppmv)	(lb/hr)	(gal/day)	(gal)
10/26/2015	146	150	147	1,680	1,725	1,700	1,100	--	--	--	--	72	1,207
10/27/2015	143	155	145	1,640	1,730	1,705	1,000	--	--	--	--	72	1,279
10/28/2015	143	159	151	1,580	1,730	1,650	1,100	--	1,400	6,050	31	124	1,403
10/29/2015	147	157	150	1,540	1,650	1,610	1,100	--	--	--	--	124	1,528
10/30/2015	148	152	149	1,615	1,700	1,650	900	--	--	--	--	124	1,652
10/31/2015	--	--	--	--	--	--	--	--	--	--	--	124	1,776
11/1/2015	--	--	--	--	--	--	--	--	--	--	--	124	1,901
11/2/2015	148	154	150	1,605	1,675	1,645	1,000	--	--	--	--	124	2,025
11/3/2015	147	151	149	1,635	1,685	1,660	1,100	--	--	--	--	124	2,149
11/4/2015	142	153	147	1,600	1,700	1,675	1,000	--	1,600	7,100	37	144	2,293
11/5/2015	145	149	148	1,670	1,710	1,690	1,100	--	--	--	--	144	2,437
11/6/2015	146	162	152	1,550	1,710	1,645	1,200	--	--	--	--	144	2,582
11/7/2015	--	--	--	--	--	--	--	--	--	--	--	144	2,726
11/8/2015	--	--	--	--	--	--	--	--	--	--	--	144	2,870
11/9/2015	148	153	149	1,555	1,605	1,580	950	--	--	--	--	144	3,014
11/10/2015	145	156	149	1,560	1,620	1,595	1,000	--	--	--	--	144	3,158
11/11/2015	143	150	148	1,580	1,635	1,605	1,100	--	1,700	6,200	37	147	3,305
11/12/2015	145	155	149	1,530	1,625	1,575	1,000	--	--	--	--	147	3,452
11/13/2015	146	156	150	1,510	1,580	1,555	900	--	--	--	--	147	3,599
11/14/2015	--	--	--	--	--	--	--	--	--	--	--	147	3,745
11/15/2015	--	--	--	--	--	--	--	--	--	--	--	147	3,892
11/16/2015	148	152	150	1,545	1,590	1,570	1,000	--	--	--	--	147	4,039
11/17/2015	147	159	152	1,380	1,600	1,480	1,350	--	--	--	--	147	4,186
11/18/2015	147	164	153	1,245	1,425	1,345	1,600	--	2,128	9,850	39	154	4,340
11/19/2015	147	162	151	1,220	1,330	1,280	1,500	--	--	--	--	154	4,494

TABLE 2. THERMAL TREATMENT SYSTEM OPERATIONS DATA SUMMARY

HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Date	Minimum Vacuum	Maximum Vacuum	Average Vacuum	Minimum Flowrate	Maximum Flowrate	Average Flowrate	Water Recovery Rate	Line Sweeping Volume	Analytical TPH (C2-C10) Concentration	FID TVPH Concentration	TVPH Recovery Rate[1]	Gasoline Equivalent Recovery Rate[2]	Cumulative Gasoline Equivalent Recovered
	(in-H_2O)	(in-H_2O)	(in-H_2O)	(scfm)	(scfm)	(scfm)	(gpd)	(gal)	(ppmv)	(ppmv)	(lb/hr)	(gal/day)	(gal)
11/20/2015	148	159	152	1,220	1,310	1,275	1,500	--	--	--	--	154	4,648
11/21/2015	--	--	--	--	--	--	--	--	--	--	--	154	4,802
11/22/2015	--	--	--	--	--	--	--	--	--	--	--	154	4,956
11/23/2015	146	158	151	1,230	1,320	1,290	1,700	--	--	--	--	154	5,110
11/24/2015	146	154	150	1,240	1,510	1,420	700	2,900	--	--	--	154	5,264
11/25/2015	145	156	150	1,380	1,460	1,425	1,500	--	1,589	7,100	31	122	5,385
11/26/2015	142	158	147	1,340	1,450	1,400	1,400	--	--	--	--	122	5,507
11/27/2015	142	152	145	1,315	1,395	1,370	1,400	--	--	--	--	122	5,629
11/28/2015	--	--	--	--	--	--	--	--	--	--	--	122	5,751
11/29/2015	--	--	--	--	--	--	--	--	--	--	--	122	5,873
11/30/2015	147	157	149	1,255	1,355	1,330	1,900	--	--	--	--	122	5,994
12/1/2015	142	160	149	1,270	1,750	1,685	1,500	--	--	--	--	122	6,116
12/2/2015	146	152	148	1,705	1,750	1,730	1,300	--	1,000	3,220	24	93	6,209
12/3/2015	144	149	147	1,720	1,770	1,745	1,200	--	--	--	--	93	6,302
12/4/2015	146	152	150	1,715	1,770	1,745	1,200	--	--	--	--	93	6,395
12/5/2015	--	--	--	--	--	--	--	--	--	--	--	93	6,488
12/6/2015	--	--	--	--	--	--	--	--	--	--	--	93	6,582
12/7/2015	149	152	150	1,710	1,745	1,730	1,200	--	--	--	--	93	6,675
12/8/2015	148	152	150	1,705	1,760	1,725	1,100	--	--	--	--	93	6,768
12/9/2015	146	153	149	1,650	1,735	1,710	1,300	--	710	3,100	17	65	6,833
12/10/2015	146	151	149	1,700	1,750	1,730	1,400	--	--	--	--	65	6,898
12/11/2015	147	151	148	1,700	1,750	1,730	1,400	--	--	--	--	65	6,964
12/12/2015	--	--	--	--	--	--	--	--	--	--	--	65	7,029
12/13/2015	--	--	--	--	--	--	--	--	--	--	--	65	7,094
12/14/2015	147	155	149	1,645	1,740	1,695	1,500	--	--	--	--	65	7,160

TABLE 2. THERMAL TREATMENT SYSTEM OPERATIONS DATA SUMMARY
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Date	Minimum Vacuum	Maximum Vacuum	Average Vacuum	Minimum Flowrate	Maximum Flowrate	Average Flowrate	Water Recovery Rate	Line Sweeping Volume	Analytical TPH (C2-C10) Concentration	FID TVPH Concentration	TVPH Recovery Rate[1]	Gasoline Equivalent Recovery Rate[2]	Cumulative Gasoline Equivalent Recovered
	(in-H_2O)	(in-H_2O)	(in-H_2O)	(scfm)	(scfm)	(scfm)	(gpd)	(gal)	(ppmv)	(ppmv)	(lb/hr)	(gal/day)	(gal)
12/15/2015	145	157	149	1,560	1,690	1,645	1,600	--	--	3,410	--	65	7,225
12/16/2015	145	157	151	1,525	1,675	1,600	1,500	--	830	3,948	18	71	7,296
12/17/2015	149	157	152	1,545	1,620	1,595	1,400	--	--	2,808	--	71	7,368
12/18/2015	149	156	151	1,560	1,620	1,600	1,500	--	--	--	--	71	7,439
12/19/2015	--	--	--	--	--	--	--	--	--	--	--	71	7,511
12/20/2015	--	--	--	--	--	--	--	--	--	--	--	71	7,582
12/21/2015	147	154	149	1,555	1,625	1,600	1,400	--	--	2,460	--	71	7,654
12/22/2015	148	160	152	1,500	1,605	1,570	1,500	--	--	--	--	71	7,725
12/23/2015	148	161	152	1,510	1,590	1,560	1,800	--	530	2,000	11	44	7,769
12/24/2015	149	159	152	1,400	1,565	1,480	2,000	--	--	--	--	44	7,814
12/25/2015	151	160	153	1,436	1,515	1,491	1,900	--	--	--	--	44	7,858
12/26/2015	--	--	--	--	--	--	--	--	--	--	--	44	7,903
12/27/2015	--	--	--	--	--	--	--	--	--	--	--	44	7,947
12/28/2015	0	194	155	0	1,280	1,050	6,300	--	--	--	--	44	7,992
12/29/2015	1	192	154	0	1,186	805	6,600	--	--	--	--	44	8,036
12/30/2015	135	182	150	606	938	812	3,350	--	238	1,100	3	10	8,047
12/31/2015	136	176	152	721	965	869	3,100	--	--	--	--	10	8,057
1/1/2016	134	167	152	785	1,300	1,185	3,000	--	--	--	--	10	8,068
1/2/2016	--	--	--	--	--	--	--	--	--	--	--	10	8,078
1/3/2016	--	--	--	--	--	--	--	--	--	--	--	10	8,088
1/4/2016	85	180	149	800	1,180	1,110	2,200	--	--	--	--	10	8,099
1/5/2016	139	160	147	1,080	1,710	1,615	3,100	--	--	--	--	10	8,109
1/6/2016	142	161	151	1,315	1,710	1,475	2,100	--	91	300	2	7	8,116
1/7/2016	149	156	150	1,387	1,470	1,434	2,100	--	--	--	--	7	8,124
1/8/2016	145	161	150	1,050	1,190	1,110	1,000	5,200	--	--	--	7	8,131

TABLE 2. THERMAL TREATMENT SYSTEM OPERATIONS DATA SUMMARY

HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Date	Minimum Vacuum	Maximum Vacuum	Average Vacuum	Minimum Flowrate	Maximum Flowrate	Average Flowrate	Water Recovery Rate	Line Sweeping Volume	Analytical TPH (C2-C10) Concentration	FID TVPH Concentration	TVPH Recovery Rate[1]	Gasoline Equivalent Recovery Rate[2]	Cumulative Gasoline Equivalent Recovered
	(in-H_2O)	(in-H_2O)	(in-H_2O)	(scfm)	(scfm)	(scfm)	(gpd)	(gal)	(ppmv)	(ppmv)	(lb/hr)	(gal/day)	(gal)
1/9/2016	--	--	--	--	--	--	--	--	--	--	--	7	8,138
1/10/2016	--	--	--	--	--	--	--	--	--	--	--	7	8,145
1/11/2016	145	162	151	975	1,125	1,050	2,000	--	--	--	--	7	8,152
1/12/2016	146	169	154	990	1,175	1,100	1,600	--	--	--	--	7	8,160
1/13/2016	142	169	154	975	1,150	1,095	1,800	--	94	375	1	6	8,165
1/14/2016	144	166	154	900	1,150	1,065	1,500	--	--	--	--	6	8,171
1/15/2016	145	162	150	1,010	1,385	1,330	1,300	--	--	--	--	6	8,176
1/16/2016	--	--	--	--	--	--	--	--	--	--	--	6	8,182
1/17/2016	--	--	--	--	--	--	--	--	--	--	--	6	8,187
1/18/2016	153	162	156	1,260	1,335	1,310	1,200	--	--	--	--	6	8,193
1/19/2016	152	162	155	1,270	1,345	1,315	1,000	--	--	--	--	6	8,198
1/20/2016	144	160	149	1,230	1,350	1,300	1,200	--	87	400	2	6	8,204
1/21/2016	153	167	159	1,268	1,355	1,323	600	--	--	--	--	6	8,211
1/22/2016	153	167	159	1,268	1,355	1,323	950	--	--	--	--	6	8,217
1/23/2016	--	--	--	--	--	--	--	--	--	--	--	6	8,223
1/24/2016	--	--	--	--	--	--	--	--	--	--	--	6	8,229
1/25/2016	150	161	154	1,296	1,382	1,351	600	--	--	--	--	6	8,235
1/26/2016	147	160	150	1,285	1,430	1,380	750	--	--	--	--	6	8,241
1/27/2016	147	157	149	1,345	1,450	1,425	700	--	110	770	2	8	8,249
1/28/2016	146	155	149	1,380	1,450	1,425	650	--	--	--	--	8	8,258
1/29/2016	--	--	--	--	--	--	--	--	--	--	--	8	8,266
1/30/2016	--	--	--	--	--	--	--	--	--	--	--	8	8,275
1/31/2016	--	--	--	--	--	--	--	--	--	--	--	8	8,283
2/1/2016	148	164	152	1,320	1,460	1,415	850	--	--	--	--	8	8,292
2/2/2016	148	159	151	1,330	1,435	1,390	700	--	--	--	--	8	8,300

TABLE 2. THERMAL TREATMENT SYSTEM OPERATIONS DATA SUMMARY

HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Date	Minimum Vacuum	Maximum Vacuum	Average Vacuum	Minimum Flowrate	Maximum Flowrate	Average Flowrate	Water Recovery Rate	Line Sweeping Volume	Analytical TPH (C2-C10) Concentration	FID TVPH Concentration	TVPH Recovery Rate[1]	Gasoline Equivalent Recovery Rate[2]	Cumulative Gasoline Equivalent Recovered
	(in-H_2O)	(in-H_2O)	(in-H_2O)	(scfm)	(scfm)	(scfm)	(gpd)	(gal)	(ppmv)	(ppmv)	(lb/hr)	(gal/day)	(gal)
2/3/2016	145	161	154	1,250	1,430	1,330	800	--	190	1,150	3	14	8,314
2/4/2016	147	159	152	1,230	1,335	1,300	500	--	--	--	--	14	8,327
2/5/2016	0	163	130	0	1,540	1,195	700	--	--	--	--	14	8,341
2/6/2016	--	--	--	--	--	--	--	--	--	--	--	14	8,354
2/7/2016	--	--	--	--	--	--	--	--	--	--	--	14	8,368
2/8/2016	143	155	147	1,305	1,375	1,355	700	--	--	--	--	14	8,382
2/9/2016	137	157	148	1,270	1,515	1,405	1,100	--	--	--	--	14	8,395
2/10/2016	147	159	152	1,355	1,450	1,420	900	--	290	1,160	6	22	8,417
2/11/2016	147	160	151	1,380	1,480	1,430	850	--	--	--	--	22	8,439
2/12/2016	145	158	149	1,390	1,485	1,445	850	--	--	--	--	22	8,462
2/13/2016	--	--	--	--	--	--	--	--	--	--	--	22	8,484
2/14/2016	--	--	--	--	--	--	--	--	--	--	--	22	8,506
2/15/2016	146	154	148	1,430	1,495	1,470	850	--	--	--	--	22	8,528
2/16/2016	146	153	148	1,415	1,500	1,465	900	--	--	--	--	22	8,550
2/17/2016	137	158	151	1,380	1,570	1,440	800	--	360	2,035	7	28	8,578
2/18/2016	147	159	151	1,385	1,480	1,445	750	--	--	--	--	28	8,606
2/19/2016	149	161	153	1,350	1,465	1,405	800	--	--	--	--	28	8,634
2/20/2016	--	--	--	--	--	--	--	--	--	--	--	28	8,662
2/21/2016	--	--	--	--	--	--	--	--	--	--	--	28	8,690
2/22/2016	151	162	153	1,330	1,430	1,395	700	--	--	--	--	28	8,718
2/23/2016	142	160	153	1,360	1,520	1,410	900	--	--	--	--	28	8,745
2/24/2016	145	158	149	1,365	1,515	1,470	1,000	--	1,700	2,646	34	134	8,880
2/25/2016	148	163	153	1,380	1,495	1,455	1,350	--	--	--	--	134	9,014
2/26/2016	141	159	148	1,330	1,425	1,380	1,350	--	--	--	--	134	9,149
2/27/2016	--	--	--	--	--	--	--	--	--	--	--	134	9,283

TABLE 2. THERMAL TREATMENT SYSTEM OPERATIONS DATA SUMMARY

HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Date	Minimum Vacuum	Maximum Vacuum	Average Vacuum	Minimum Flowrate	Maximum Flowrate	Average Flowrate	Water Recovery Rate	Line Sweeping Volume	Analytical TPH (C2-C10) Concentration	FID TVPH Concentration	TVPH Recovery Rate[1]	Gasoline Equivalent Recovery Rate[2]	Cumulative Gasoline Equivalent Recovered
	(in-H_2O)	(in-H_2O)	(in-H_2O)	(scfm)	(scfm)	(scfm)	(gpd)	(gal)	(ppmv)	(ppmv)	(lb/hr)	(gal/day)	(gal)
2/28/2016	--	--	--	--	--	--	--	--	--	--	--	134	9,418
2/29/2016	142	152	147	1,315	1,420	1,375	1,000	3,900	--	--	--	134	9,552
3/1/2016	147	152	150	1,490	1,535	1,510	300	--	--	--	--	134	9,687
3/2/2016	147	154	150	1,475	1,560	1,525	450	--	--	2,100	--	134	9,821
3/3/2016	146	154	148	1,475	1,555	1,520	1,700	--	--	--	--	134	9,955
3/4/2016	143	156	150	1,430	1,570	1,505	2,700	--	--	--	--	134	10,090
3/5/2016	--	--	--	--	--	--	--	--	--	--	--	134	10,224
3/6/2016	--	--	--	--	--	--	--	--	--	--	--	134	10,359
3/7/2016	148	159	152	1,425	1,515	1,475	2,700	--	--	--	--	134	10,493
3/8/2016	147	158	150	1,420	1,500	1,470	2,800	--	--	--	--	134	10,628
3/9/2016	147	158	150	1,400	1,500	1,465	2,600	--	1,400	2,620	28	110	10,738
3/10/2016	145	159	151	1,310	1,495	1,405	2,700	--	--	--	--	110	10,848
3/11/2016	145	157	149	1,215	1,370	1,325	2,800	--	--	--	--	110	10,959
3/12/2016	--	--	--	--	--	--	--	--	--	--	--	110	11,069
3/13/2016	--	--	--	--	--	--	--	--	--	--	--	110	11,179
3/14/2016	143	154	147	1,250	1,350	1,305	1,400	--	--	--	--	110	11,290
3/15/2016	145	156	149	1,265	1,380	1,340	1,400	--	--	--	--	110	11,400
3/16/2016	147	157	151	1,330	1,415	1,390	1,500	--	2,200	2,955	42	165	11,564
3/17/2016	147	157	150	1,365	1,455	1,440	1,300	--	--	--	--	165	11,729
3/18/2016	148	156	151	1,360	1,455	1,420	1,200	--	--	--	--	165	11,893
3/19/2016	--	--	--	--	--	--	--	--	--	--	--	165	12,058
3/20/2016	--	--	--	--	--	--	--	--	--	--	--	165	12,222
3/21/2016	148	156	150	1,400	1,470	1,445	1,100	--	--	--	--	165	12,387
3/22/2016	147	157	150	1,360	1,460	1,415	1,200	--	--	--	--	165	12,551
3/23/2016	145	158	151	1,345	1,450	1,415	1,300	--	511	2,900	10	39	12,590

TABLE 2. THERMAL TREATMENT SYSTEM OPERATIONS DATA SUMMARY

HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Date	Minimum Vacuum	Maximum Vacuum	Average Vacuum	Minimum Flowrate	Maximum Flowrate	Average Flowrate	Water Recovery Rate	Line Sweeping Volume	Analytical TPH (C2-C10) Concentration	FID TVPH Concentration	TVPH Recovery Rate[1]	Gasoline Equivalent Recovery Rate[2]	Cumulative Gasoline Equivalent Recovered
	(in-H_2O)	(in-H_2O)	(in-H_2O)	(scfm)	(scfm)	(scfm)	(gpd)	(gal)	(ppmv)	(ppmv)	(lb/hr)	(gal/day)	(gal)
3/24/2016	149	157	151	1,380	1,450	1,425	1,200	--	--	--	--	39	12,629
3/25/2016	147	161	154	1,325	1,440	1,395	1,300	--	--	--	--	39	12,668
3/26/2016	--	--	--	--	--	--	--	--	--	--	--	39	12,707
3/27/2016	--	--	--	--	--	--	--	--	--	--	--	39	12,746
3/28/2016	149	164	155	1,315	1,430	1,385	1,400	--	--	--	--	39	12,785
3/29/2016	146	163	150	1,290	1,390	1,345	1,100	--	--	--	--	39	12,824
3/30/2016	146	157	149	1,445	1,575	1,475	350	4,000	681	3,426	14	54	12,878
3/31/2016	142	155	149	1,270	1,475	1,380	700	--	--	--	--	54	12,932

Notes:

[1] Calculation based on *Estimating Air Emissions from Petroleum UST Cleanups* (USEPA 1989) with assumed molecular weight of 86.2 lb/lb-mol

[2] Assumes product density of 6.08 lb/gal

TPH - total petroleum hydrocarbons

TVPH - total volatile petroleum hydrocarbons

FID - flame ionization detector

-- - not applicable or not available

in-H_2O - inches water column

scfm - standard cubic feet per minute

gal - gallons

gpd - gallons per day

ppmv - parts per million by volume

TABLE 3. SUMMARY OF EXTRACTION WELLS WITH LEAKING CONTROL VALVES

HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location	Zone	Valve Type	Severity of Leak	Percent Online from October 2015 through March 2016	Stinger Type
			(in-H2O)		
HSVE-004D	Zone 1	Butterfly	0.16	100%	None
HSVE-003S	Zone 1	Butterfly	0.19	100%	None
HSVE-039	Zone 2	Gate	0.80	54%	Viton
HSVE-092	Zone 4	Gate	1.1	97%	None
HSVE-017S	Zone 4	Gate	2.1	41%	Flow Tube
HSVE-042	Zone 2	Gate	2.6	100%	Viton
HSVE-096	Zone 4	Gate	2.6	78%	Viton
HSVE-038	Zone 2	Gate	2.7	100%	None
HSVE-026D	Zone 1	Butterfly	2.8	90%	Viton
HSVE-071	Zone 6	Gate	2.9	38%	Viton
HSVE-037	Zone 2	Gate	3.1	100%	None
HSVE-007D	Zone 5	Butterfly	3.2	64%	Flow Tube
HSVE-050	Zone 2	Gate	3.5	98%	None
HSVE-054	Zone 5	Gate	3.8	76%	None
HSVE-062	Zone 6	Gate	3.8	74%	Viton
HSVE-007S	Zone 5	Butterfly	4.0	100%	Flow Tube
HSVE-010D	Zone 5	Butterfly	4.2	87%	Flow Tube
HSVE-036	Zone 2	Gate	4.3	90%	Viton
HSVE-048	Zone 2	Gate	4.3	100%	Viton
HSVE-033	Zone 3	Gate	5.4	70%	None
HSVE-093	Zone 4	Gate	5.4	27%	Viton
HSVE-012D	Zone 4	Butterfly	5.8	100%	Viton
HSVE-006R	Zone 2	Gate	6.0	42%	None
HSVE-012S	Zone 4	Butterfly	6.0	23%	None
HSVE-051	Zone 2	Gate	6.0	100%	None
HSVE-067	Zone 6	Gate	6.1	34%	Straw Stinger
HSVE-089	Zone 4	Gate	7.1	48%	Viton
HSVE-064	Zone 6	Gate	10.0	33%	None
HSVE-084	Zone 5	Gate	10.1	40%	None
HSVE-035	Zone 2	Gate	11.0	71%	None
HSVE-078	Zone 5	Gate	20.7	60%	Viton
HSVE-018D	Zone 4	Butterfly	41.7	84%	None
HSVE-022	Zone 5	Butterfly	44.3	100%	Flow Tube
HSVE-017D	Zone 4	Butterfly	54.0	93%	Flow Tube
HSVE-003D	Zone 1	Butterfly	68.0	65%	Flow Tube
HSVE-023D	Zone 1	Butterfly	94.8	67%	None
HSVE-024S	Zone 1	Butterfly	98.0	100%	Flow Tube

Notes:

Vacuum greater than 10 in-H2O

Vacuum between 2 and 10 in-H2O

Vacuum less than 2 in-H2O

TABLE 4. EXTRACTION FLOW RATE AND MASS REMOVAL ESTIMATES

HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

			October 2015					November 2015					December 2015				
Location	Zone	Stratum	TVPH	PHC	Vacuum	Flow Rate	Mass Recovery Rate	TVPH	PHC	Vacuum	Flow Rate	Mass Recovery Rate	TVPH	PHC	Vacuum	Flow Rate	Mass Recovery Rate
			(ppmv)	(ppmv)	(in-H_2O)	(scfm)	(lbs/day)	(ppmv)	(ppmv)	(in-H_2O)	(scfm)	(lbs/day)	(ppmv)	(ppmv)	(in-H_2O)	(scfm)	(lbs/day)
HSVE-003D	Zone 1	Multiple Strata	95	95	--	--	--	12	6	87	23.3	0.0	430	350	100	13.7	1.6
HSVE-003S	Zone 1	N. Olive	785	209	101	83.4	5.7	430	0	--	--	--	2,218	691	108	121.1	27.4
HSVE-004D	Zone 1	Multiple Strata	250	219	117	52.5	3.8	8	8	119	62.7	0.2	490	490	117	133.8	21.4
HSVE-004R	Zone 1	Main Sand	30,200	17,422	120	6.9	39.1	8,680	5,537	118	7.0	12.6	34,600	28,274	116	0.0	0.0
HSVE-004S	Zone 1	N. Olive	350	142	65	122.4	5.7	387	223	118	78.6	5.7	203	196	116	176.9	11.3
HSVE-005R	Zone 2	Rand	765	376	123	6.9	0.9	920	906	123	12.6	3.7	1,880	1,061	105	11.1	3.8
HSVE-006R	Zone 2	Main Sand	NM*	NM*	80	0.0	0.0	843,000	815,200	28	11.2	2,991.6	1,000,000	953,500	--	--	--
HSVE-007D	Zone 5	Multiple Strata	15	12	24	15.1	0.1	360	357	--	--	--	540	371	--	--	--
HSVE-007S	Zone 5	N. Olive	262	191	19	88.0	5.5	2,925	2,129	44	95.7	66.7	1,265	938	32	87.3	26.8
HSVE-009D	Zone 5	Rand	36	23	--	--	--	200	200	--	--	--	50	50	--	--	--
HSVE-009S	Zone 5	A Clay	29	29	--	--	--	118	118	--	--	--	104	73	--	--	--
HSVE-010D	Zone 5	Multiple Strata	300	176	--	--	--	27,300	18,666	0	0.0	0.0	4,400	2,428	0	0.0	0.0
HSVE-010S	Zone 5	N. Olive	11	11	--	--	--	250	226	0	0.0	0.0	131	103	0	0.0	0.0
HSVE-012D	Zone 4	Main Silt	10,500	10,050	113	42.7	140.3	10,500	9,955	118	NM***	NM***	1,300	1,262	115	45.8	18.9
HSVE-012S	Zone 4	N. Olive	20	16	108	0.0	0.0	157	157	--	--	--	78	78	--	--	--
HSVE-017D	Zone 4	Multiple Strata	177	41	104	52.4	0.7	158	146	113	75.2	3.6	269	269	104	43.0	3.8
HSVE-017S	Zone 4	A Clay	12	12	--	--	--	143	143	--	--	--	352	352	104	43.1	5.0
HSVE-018D	Zone 4	Multiple Strata	48	47	--	--	--	132	132	--	--	--	236	236	123	57.8	4.5
HSVE-018S	Zone 4	A Clay	10	10	--	--	--	69	66	--	--	--	312	302	123	52.7	5.2
HSVE-019D	Zone 4	Multiple Strata	60	57	131	79.2	1.5	970	671	--	--	--	113	113	121	79.0	2.9
HSVE-019S	Zone 4	N. Olive	10	10	--	--	--	70	70	--	--	--	33	33	118	45.1	0.5
HSVE-020D	Zone 1	Multiple Strata	3	3	76	186.8	0.2	2	2	--	--	--	73	12	73	158.2	0.6
HSVE-020S	Zone 1	N. Olive	855	101	87	140.5	4.7	14	5	89	134.5	0.2	35	18	103	98.0	0.6
HSVE-021	Zone 3	Multiple Strata	155	133	120	33.1	1.4	120	120	119	32.4	1.3	442	435	119	27.2	3.9
HSVE-022	Zone 5	Main Silt	150	131	133	19.0	0.8	350	335	135	22.2	2.4	354	327	130	14.2	1.5
HSVE-023D	Zone 1	Multiple Strata	11,500	2,297	117	53.0	39.8	7,700	1,386	113	0.0	0.0	6,520	1,027	110	152.9	51.4
HSVE-023S	Zone 1	N. Olive	160	44	113	44.9	0.6	32	29	115	14.6	0.1	92	54	106	21.1	0.4
HSVE-024D	Zone 1	Multiple Strata	205	24	114	34.4	0.3	20,000	1,429	103	25.0	11.7	198	54	107	29.2	0.5
HSVE-024S	Zone 1	N. Olive	76	9	114	38.0	0.1	1,400	93	105	38.0	1.2	252	58	102	41.4	0.8
HSVE-025D	Zone 1	Multiple Strata	1,100	267	109	31.7	2.8	310	80	118	22.9	0.6	1,300	436	108	19.7	2.8
HSVE-026D	Zone 1	Multiple Strata	785	368	116	20.9	2.5	875	339	110	NM***	NM***	463	289	114	13.5	1.3
HSVE-027D	Zone 1	Rand	2,500	736	119	7.2	1.7	725	418	--	--	--	3,490	1,840	--	--	--
HSVE-028S	Zone 5	N. Olive	365	36	136	29.5	0.4	2,680	286	139	30.2	2.8	1,985	108	134	29.3	1.0
HSVE-029D	Zone 5	Rand	30,000	11,000	134	6.6	23.6	71,000	28,746	141	3.5	32.6	8,540	3,019	132	6.0	5.9
HSVE-029S	Zone 5	N. Olive	50	50	--	--	--	212	168	--	--	--	108	108	133	NM***	NM***
HSVE-031D	Zone 3	Main Silt	1,520	621	124	23.2	4.7	1,460	1,320	132	26.3	11.3	855	794	120	22.4	5.8
HSVE-033	Zone 3	Main Silt	0	0	--	--	--	569	401	--	--	--	5	5	89	10.9	0.0
HSVE-034	Zone 3	Main Silt	120	120	--	--	--	210	210	115	137.7	9.5	6	6	99	15.4	0.0
HSVE-035	Zone 2	Main Silt	0	0	--	--	--	470	470	--	--	--	75	68	85	15.6	0.3

TABLE 4. EXTRACTION FLOW RATE AND MASS REMOVAL ESTIMATES

HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

			October 2015					November 2015					December 2015				
Location	Zone	Stratum	TVPH	PHC	Vacuum	Flow Rate	Mass Recovery Rate	TVPH	PHC	Vacuum	Flow Rate	Mass Recovery Rate	TVPH	PHC	Vacuum	Flow Rate	Mass Recovery Rate
			(ppmv)	(ppmv)	(in-H_2O)	(scfm)	(lbs/day)	(ppmv)	(ppmv)	(in-H_2O)	(scfm)	(lbs/day)	(ppmv)	(ppmv)	(in-H_2O)	(scfm)	(lbs/day)
HSVE-036	Zone 2	Main Silt	2,500	556	110	20.8	3.8	1,200	771	107	21.7	5.5	345	306	104	21.4	2.1
HSVE-037	Zone 2	Main Silt	1,400	379	111	25.2	3.1	645	524	106	27.8	4.8	675	542	96	32.8	5.8
HSVE-038	Zone 2	Main Silt	2,130	884	112	9.2	2.7	1,627	1,331	118	11.4	5.0	1,370	1,290	113	9.6	4.0
HSVE-039	Zone 2	Main Silt	103	103	--	--	--	1,130	516	--	--	--	638	502	96	36.9	6.1
HSVE-040	Zone 2	Main Silt	1,550	1,161	114	31.1	11.8	1,185	968	112	36.7	11.6	1,843	1,803	110	32.5	19.2
HSVE-041	Zone 2	Main Silt	270	270	--	--	--	131	131	121	0.0	0.0	4,800	4,719	121	0.0	0.0
HSVE-042	Zone 2	Main Silt	1,700	1,492	125	13.0	6.3	2,730	2,561	122	13.5	11.3	4,540	4,097	121	12.7	17.1
HSVE-043	Zone 2	Rand	22	22	--	--	--	53	53	--	--	--	20	20	--	--	--
HSVE-044	Zone 2	Rand	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HSVE-045	Zone 2	Rand	--	--	--	--	--	162	162	--	--	--	--	--	--	--	--
HSVE-047	Zone 2	Rand	800	536	--	--	--	106	87	125	41.6	1.2	1,712	1,218	121	16.5	6.6
HSVE-048	Zone 2	Main Silt	27,300	22,578	119	9.6	71.0	34,700	29,600	114	21.9	212.0	16,700	14,890	118	28.1	136.9
HSVE-049	Zone 2	Main Silt	51,000	49,444	123	39.3	636.2	43,750	42,550	125	54.8	762.8	10,600	7,571	120	53.7	132.9
HSVE-050	Zone 2	Main Silt	4,200	4,026	123	33.7	44.4	4,800	4,300	124	39.1	55.0	8,162	7,942	122	36.5	94.8
HSVE-051	Zone 2	Main Silt	4,000	2,236	124	45.8	33.5	5,035	3,935	123	48.8	62.9	8,930	8,153	121	42.2	112.6
HSVE-052	Zone 5	Rand	35,600	32,314	135	11.2	118.8	63,500	58,973	134	12.7	245.4	29,200	27,693	129	11.5	104.0
HSVE-053	Zone 5	Rand	6,350	4,921	134	12.2	19.6	7,560	5,997	130	14.8	29.1	6,320	2,489	127	14.3	11.6
HSVE-054	Zone 5	Main Sand	190	167	131	37.1	2.0	1,265	1,152	132	38.4	14.5	277	277	--	--	--
HSVE-057	Zone 6	Rand	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HSVE-058	Zone 6	N. Olive	24,300	0	--	--	--	56,200	19,000	121	12.0	74.5	--	--	--	--	--
HSVE-059	Zone 6	Rand	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HSVE-060	Zone 6	Rand	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HSVE-061	Zone 6	N. Olive	65,000	41,377	--	--	--	1,120	1,100	119	NM**	NM**	35	35	118	NM**	NM**
HSVE-062	Zone 6	N. Olive	23,800	0	131	94.8	0.0	NM*	NM*	120	8.7	NM*	65	62	45	5.7	0.1
HSVE-064	Zone 6	N. Olive	25	19	8	7.8	0.0	35	35	--	--	--	20	20	115	32.5	0.2
HSVE-067	Zone 6	N. Olive	7	7	--	--	--	30	30	--	--	--	29	29	--	--	--
HSVE-070	Zone 6	N. Olive	2,600	571	107	0.0	0.0	4,060	1,200	--	--	--	315	52	55	8.9	0.2
HSVE-071	Zone 6	Rand	6,720	1,358	89	0.0	0.0	19,800	6,839	116	0.0	0.0	12,300	6,159	122	7.4	14.9
HSVE-072	Zone 6	Rand	21	17	--	--	--	143	113	--	--	--	105	61	--	--	--
HSVE-074	Zone 6	N. Olive	8	8	--	--	--	530	530	--	--	--	37	37	75	23.8	0.3
HSVE-076	Zone 6	Rand	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HSVE-077	Zone 6	N. Olive	86,000	42,500	129	8.1	113.2			--	--	--	--	--	--	--	--
HSVE-078	Zone 5	Rand	520,000	300,000	--	--	--	1,000,000	742,000	--	--	--	NM*	NM*	123	0.0	NM*
HSVE-079	Zone 5	Rand	NM*	NM*	137	0.0	NM*	380,000	200,000	--	--	--	37,200	34,313	--	--	--
HSVE-080	Zone 5	N. Olive	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HSVE-081	Zone 5	Rand	433,000	280,000	--	--	--	730,000	515,000	--	--	--	504,000	326,000	--	--	--
HSVE-082	Zone 5	N. Olive	700	321	138	NM**	NM**	1,660	878	--	NM**	NM**	800	392	136	NM**	NM**
HSVE-083	Zone 5	Rand	25,100	12,886	138	27.9	117.8	1,650	1,395	142	35.1	16.0	910	735	136	33.1	8.0
HSVE-084	Zone 5	Rand	NM*	NM*	125	0.0	NM*			--	--	--	58,200	31,862	26	0.0	0.0

TABLE 4. EXTRACTION FLOW RATE AND MASS REMOVAL ESTIMATES
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

			October 2015					November 2015					December 2015				
Location	Zone	Stratum	TVPH	PHC	Vacuum	Flow Rate	Mass Recovery Rate	TVPH	PHC	Vacuum	Flow Rate	Mass Recovery Rate	TVPH	PHC	Vacuum	Flow Rate	Mass Recovery Rate
			(ppmv)	(ppmv)	(in-H_2O)	(scfm)	(lbs/day)	(ppmv)	(ppmv)	(in-H_2O)	(scfm)	(lbs/day)	(ppmv)	(ppmv)	(in-H_2O)	(scfm)	(lbs/day)
HSVE-085	Zone 5	Rand	20,000	5,000	--	--	--	11,800	8,673	137	5.7	16.2	7,150	6,087	131	7.0	13.8
HSVE-086	Zone 5	N. Olive	130	93	129	32.2	1.0	312	304	135	25.9	2.6	160	160	125	31.0	1.6
HSVE-087	Zone 4	Rand	4,100	3,486	132	16.5	18.8	6,290	5,382	133	7.5	13.3	4,400	4,008	116	7.8	10.2
HSVE-088	Zone 4	Rand	50	40	--	--	--	55	55	--	--	--	40	40	--	--	--
HSVE-089	Zone 4	N. Olive	20	14	131	40.0	0.2	45	45	--	--	--	201	119	129	26.5	1.0
HSVE-090	Zone 4	Main Silt	NM*	NM*	131	15.5	NM*	39,600	14,600	--	--	--	14,400	0	--	--	--
HSVE-091	Zone 4	Main Silt	NM*	NM*	107	0.0	NM*	275,000	193,000	--	--	--	72,200	63,700	130	4.9	102.5
HSVE-092	Zone 4	N. Olive	275	51	134	43.3	0.7	1,760	538	140	22.8	4.0	377	370	--	--	--
HSVE-093	Zone 4	Main Silt	14,300	0	--	--	--	64,600	6,544	75	6.8	14.6	790	310	55	7.9	0.8
HSVE-094	Zone 4	Main Silt	14,100	814	--	--	--	16,500	1,639	--	--	--	147	126	--	--	--
HSVE-095	Zone 4	Main Silt	715	565	121	16.4	3.0	1,400	1,336	133	19.1	8.3	60	60	115	22.6	0.4
HSVE-096	Zone 4	Rand	325	302	119	21.0	2.1	70	70	124	37.6	0.9	1,238	1,217	124	35.2	14.0
HSVE-097	Zone 4	Rand	1,170	970	131	24.8	7.9	290	280	126	40.5	3.7	1,469	1,455	124	26.7	12.7
HSVE-098	Zone 2	A/B Clay	6,800	5,235	122	30.2	51.6	6,480	4,845	125	20.9	33.1	7,043	5,116	118	11.5	19.2
HSVE-099	Zone 6	Multiple Strata	70,800	22,249	127	34.7	252.8	57,400	17,686	113	45.8	265.1	29,000	7,451	114	32.3	78.8
HSVE-100	Zone 5	N. Olive	7,530	3,472	123	13.7	15.5	NM*	NM*	128	7.0	NM*	11,800	4,532	121	10.5	15.6
HSVE-101	Zone 5	N. Olive	245	158	135	13.2	0.7	920	557	136	9.7	1.8	380	253	129	14.7	1.2
HSVE-102	Zone 1	N. Olive	800	36	111	16.5	0.2	295	16	107	25.3	0.1	1,597	130	94	38.4	1.6
HSVE-103	Zone 1	A/B Clay	275	128	112	38.7	1.6	125	54	105	39.9	0.7	2,282	782	99	23.2	5.9
HSVE-105D	Zone 1	Main Sand	--	--	--	--	--	5	5	--	--	--	420	420	--	--	--
HSVE-105S	Zone 1	N. Olive	38	38	--	--	--	15	12	115	32.9	0.1	510	510	109	57.1	9.5
HSVE-106D	Zone 1	Main Sand	20	20	--	--	--	35	29	113	18.8	0.2	55	55	116	56.2	1.0
HSVE-106S	Zone 1	N. Olive	--	--	--	--	--	25	25	--	--	--	70	69	101	11.9	0.3
HSVE-107D	Zone 1	Main Sand	55	55	--	--	--	7	7	--	--	--	212	212	--	--	--
HSVE-107S	Zone 1	Multiple Strata	105	104	--	--	--	9	9	115	15.6	0.0	322	313	112	21.0	2.2
MPE-A002	Area A	Main Sand	7,230	2,646	142	19.9	17.2	--	--	--	--	--	--	--	--	--	--
TOTAL FLOW RATE AND MASS REMOVAL BASED ON WELL-BY-WELL EVALUATION						**2,022**	**1,844**				**1,674**	**5,034**				**2,492**	**1,180**
TOTAL MASS REMOVAL BASED ON SVE MAIN HEADER MEASUREMENTS			3,500	1,900	150	**1,575**	**981**	9,850	6,864	153	**1,345**	**3,020**	3,100	2,051	149	**1,710**	**1,147**

TABLE 4. EXTRACTION FLOW RATE AND MASS REMOVAL ESTIMATES

HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

			January 2016					February 2016					March 2016				
Location	Zone	Stratum	TVPH	PHC	Vacuum	Flow Rate	Mass Recovery Rate	TVPH	PHC	Vacuum	Flow Rate	Mass Recovery Rate	TVPH	PHC	Vacuum	Flow Rate	Mass Recovery Rate
			(ppmv)	(ppmv)	(in-H_2O)	(scfm)	(lbs/day)	(ppmv)	(ppmv)	(in-H_2O)	(scfm)	(lbs/day)	(ppmv)	(ppmv)	(in-H_2O)	(scfm)	(lbs/day)
HSVE-003D	Zone 1	Multiple Strata	88	88	108	36.8	1.1	198	198	105	0.0	0.0	1,340	1,340	110	14.8	6.5
HSVE-003S	Zone 1	N. Olive	38	34	116	145.0	1.6	450	116	103	166.7	6.3	635	216	115	132.8	9.4
HSVE-004D	Zone 1	Multiple Strata	57	57	123	104.6	2.0	115	115	114	0.0	0.0	885	881	119	53.0	15.3
HSVE-004R	Zone 1	Main Sand	710	651	123	0.0	0.0	4,520	1,076	115	20.0	7.0	6,116	3,369	119	3.3	3.7
HSVE-004S	Zone 1	N. Olive	15	15	123	914.7	4.5	92	92	117	198.6	6.0	102	102	--	--	--
HSVE-005R	Zone 2	Rand	NM*	NM*	133	5.0	NM*	490	136	87	13.3	0.6	1,500	510	--	--	--
HSVE-006R	Zone 2	Main Sand	--	--	--	--	--	--	--	--	--	--	367,000	302,500	--	--	--
HSVE-007D	Zone 5	Multiple Strata	450	436	--	--	--	1,074	795	43	49.6	12.9	2,970	2,136	40	15.0	10.5
HSVE-007S	Zone 5	N. Olive	317	313	45	83.6	8.5	552	373	38	37.1	4.5	411	283	35	91.8	8.5
HSVE-009D	Zone 5	Rand	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HSVE-009S	Zone 5	A Clay	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HSVE-010D	Zone 5	Multiple Strata	5,670	3,666	--	--	--	--	--	--	--	--	--	--	--	--	--
HSVE-010S	Zone 5	N. Olive	73	52	--	--	--	--	--	--	--	--	--	--	--	--	--
HSVE-012D	Zone 4	Main Silt	73	73	94	30.3	0.7	275	267	69	43.6	3.8	5,269	4,729	66	36.1	55.9
HSVE-012S	Zone 4	N. Olive	22	22	--	--	--	51	51	43	NM***	NM***	173	173	61	73.0	4.1
HSVE-017D	Zone 4	Multiple Strata	14	14	125	NM***	NM***	32	32	114	39.5	0.4	63	63	109	54.9	1.1
HSVE-017S	Zone 4	A Clay	49	49	--	--	--	12	12	11	17.2	0.1	91	91	110	36.6	1.1
HSVE-018D	Zone 4	Multiple Strata	26	26	121	53.2	0.5	26	26	128	52.7	0.4	58	58	132	51.3	1.0
HSVE-018S	Zone 4	A Clay	13	13	124	NM***	NM***	6	6	125	NM***	NM***	30	30	131	83.1	0.8
HSVE-019D	Zone 4	Multiple Strata	27	27	124	NM***	NM***	16	16	133	77.3	0.4	116	73	139	125.1	3.0
HSVE-019S	Zone 4	N. Olive	8	8	120	46.6	0.1	11	11	121	47.5	0.2	8	8	130	45.4	0.1
HSVE-020D	Zone 1	Multiple Strata	4	4	114	53.9	0.1	48	48	108	68.2	1.1	43	43	108	64.0	0.9
HSVE-020S	Zone 1	N. Olive	18	8	120	NM***	NM***	21	21	102	54.9	0.4	22	22	118	133.1	1.0
HSVE-021	Zone 3	Multiple Strata	23	17	127	23.8	0.1	717	339	113	23.2	2.6	373	264	--	--	--
HSVE-022	Zone 5	Main Silt	35	35	127	13.2	0.2	1,055	445	45	17.7	2.6	330	240	30	NM***	NM***
HSVE-023D	Zone 1	Multiple Strata	9	9	--	--	--	--	--	--	--	--	--	--	--	--	--
HSVE-023S	Zone 1	N. Olive	15	8	111	0.0	0.0	47	47	105	14.9	0.2	151	148	115	0.0	0.0
HSVE-024D	Zone 1	Multiple Strata	10	10	119	0.0	0.0	304	72	113	13.5	0.3	175	66	118	0.0	0.0
HSVE-024S	Zone 1	N. Olive	3	3	115	NM***	NM***	721	18	110	16.0	0.1	1,130	161	117	44.2	2.3
HSVE-025D	Zone 1	Multiple Strata	600	51	108	14.1	0.2	410	101	106	NM***	NM***	938	364	115	37.0	4.4
HSVE-026D	Zone 1	Multiple Strata	1,165	0	--	--	--	2,757	1,110	111	14.7	5.3	239	146	112	17.9	0.9
HSVE-027D	Zone 1	Rand	180	25	--	--	--	26	26	--	--	--	116	85	118	3.6	0.1
HSVE-028S	Zone 5	N. Olive	60	42	129	27.3	0.4	1,050	7	133	24.2	0.1	865	111	135	23.3	0.8
HSVE-029D	Zone 5	Rand	NM*	NM*	128	0.0	NM*	15,600	1,171	131	8.0	3.0	124,000	50,765	133	7.3	121.9
HSVE-029S	Zone 5	N. Olive	NM*	NM*	129	62.5	NM*	195	152	130	65.9	3.3	162	162	133	0.0	0.0
HSVE-031D	Zone 3	Main Silt	18	18	114	16.1	0.1	5,395	977	123	25.7	8.2	1,778	696	125	23.2	5.3
HSVE-033	Zone 3	Main Silt	0	0	117	18.8	0.0	10	10	70	10.7	0.0	0	0	77	12.7	0.0
HSVE-034	Zone 3	Main Silt	0	0	126	27.1	0.0	23	23	74	46.0	0.3	0	0	80	42.7	0.0
HSVE-035	Zone 2	Main Silt	NM*	NM*	93	0.0	NM*	890	105	58	12.7	0.4	8	8	80	13.4	0.0

TABLE 4. EXTRACTION FLOW RATE AND MASS REMOVAL ESTIMATES

HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

			January 2016					February 2016					March 2016				
Location	Zone	Stratum	TVPH (ppmv)	PHC (ppmv)	Vacuum (in-H_2O)	Flow Rate (scfm)	Mass Recovery Rate (lbs/day)	TVPH (ppmv)	PHC (ppmv)	Vacuum (in-H_2O)	Flow Rate (scfm)	Mass Recovery Rate (lbs/day)	TVPH (ppmv)	PHC (ppmv)	Vacuum (in-H_2O)	Flow Rate (scfm)	Mass Recovery Rate (lbs/day)
HSVE-036	Zone 2	Main Silt	49,100	9,663	--	--	--	0	0	92	17.6	0.0	2,840	826	109	14.3	3.9
HSVE-037	Zone 2	Main Silt	62	56	108	16.6	0.3	1,130	248	102	22.5	1.8	2,715	782	109	26.5	6.8
HSVE-038	Zone 2	Main Silt	18	18	98	0.0	0.0	1,047	453	109	11.2	1.7	2,490	1,044	115	11.0	3.8
HSVE-039	Zone 2	Main Silt	10	10	--	--	--	7	7	89	28.7	0.1	14	11	96	29.3	0.1
HSVE-040	Zone 2	Main Silt	13	13	111	13.2	0.1	800	557	103	27.1	4.9	885	728	114	30.4	7.2
HSVE-041	Zone 2	Main Silt	640	634	127	11.5	2.4	55	55	113	5.1	0.1	192	192	121	0.0	0.0
HSVE-042	Zone 2	Main Silt	9,340	9,206	129	30.1	90.7	3,150	2,951	118	9.6	9.2	8,215	7,262	121	11.0	26.1
HSVE-043	Zone 2	Rand	--	--	--	--	--	18	18	--	--	--	NM*	NM*	96	5.2	NM*
HSVE-044	Zone 2	Rand	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HSVE-045	Zone 2	Rand	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HSVE-047	Zone 2	Rand	390	390	--	--	--	450	244	112	5.6	0.4	1,310	1,029	124	7.4	2.5
HSVE-048	Zone 2	Main Silt	2,120	1,021	113	25.8	8.6	15,000	8,776	111	22.1	63.4	30,700	24,364	122	13.3	106.2
HSVE-049	Zone 2	Main Silt	NM*	NM*	121	0.0	NM*	30,000	28,353	112	43.9	406.9	61,000	58,900	119	67.5	1,300.0
HSVE-050	Zone 2	Main Silt	160	157	131	26.3	1.4	3,220	2,838	113	31.1	28.8	4,453	4,082	124	36.8	49.1
HSVE-051	Zone 2	Main Silt	50	50	128	16.6	0.3	3,567	2,868	118	35.6	33.4	4,780	3,427	123	42.6	47.7
HSVE-052	Zone 5	Rand	2,250	2,230	--	--	--	23,400	20,493	126	6.7	44.7	42,500	38,059	131	17.9	223.1
HSVE-053	Zone 5	Rand	84	70	127	13.4	0.3	1,471	690	124	17.7	4.0	6,055	3,952	128	14.4	18.6
HSVE-054	Zone 5	Main Sand	148	140	130	21.4	1.0	138	125	24	12.0	0.5	1,790	1,458	127	14.5	6.9
HSVE-057	Zone 6	Rand	--	--	--	--	--	--	--	--	--	--	71	2	--	--	--
HSVE-058	Zone 6	N. Olive	3	3	128	16.9	0.0	670	0	47	9.1	0.0	370	10	28	5.8	0.0
HSVE-059	Zone 6	Rand	--	--	--	--	--	--	--	--	--	--	4,035	194	--	--	--
HSVE-060	Zone 6	Rand	--	--	--	--	--	--	--	--	--	--	160	4	--	--	--
HSVE-061	Zone 6	N. Olive	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HSVE-062	Zone 6	N. Olive	--	--	--	--	--	200	0	17	0.0	0.0	2,087	124	29	0.0	0.0
HSVE-064	Zone 6	N. Olive	--	--	--	--	--	9	9	--	--	--	47	44	--	--	--
HSVE-067	Zone 6	N. Olive	--	--	--	--	--	5	5	--	--	--	30	30	--	--	--
HSVE-070	Zone 6	N. Olive	12,400	0	--	--	--	3,925	739	51	5.6	1.4	25,200	5,494	72	0.0	0.0
HSVE-071	Zone 6	Rand	--	--	--	--	--	35	11	--	--	--	8,220	3,450	--	--	--
HSVE-072	Zone 6	Rand	--	--	--	--	--	11	0	--	--	--	18	18	--	--	--
HSVE-074	Zone 6	N. Olive	--	--	--	--	--	3	3	--	--	--	9	9	--	--	--
HSVE-076	Zone 6	Rand	--	--	--	--	--	--	--	--	--	--	38,300	16,976	118	16.9	94.1
HSVE-077	Zone 6	N. Olive	97,800	60,617	114	6.9	136.0	110,000	55,500	121	10.3	187.3	114,000	58,550	121	10.3	196.9
HSVE-078	Zone 5	Rand	233,000	121,000	--	--	--	NM*	NM*	122	8.7	NM*	NM*	NM*	122	0.0	NM*
HSVE-079	Zone 5	Rand	--	--	--	--	--	NM*	NM*	120	0.0	NM*	905,000	581,000	--	--	--
HSVE-080	Zone 5	N. Olive	2,140	668	114	6.9	1.5	NM*	NM*	124	0.0	NM*	13,750	13,300	--	--	--
HSVE-081	Zone 5	Rand	59,000	27,400	--	--	--	NM*	NM*	94	26.7	NM*	1,000,000	483,000	--	--	--
HSVE-082	Zone 5	N. Olive	1,660	649	131	NM**	NM**	62	62	132	NM**	NM**	4,478	887	136	NM**	NM**
HSVE-083	Zone 5	Rand	NM*	NM*	133	32.9	NM*	NM*	NM*	132	31.0	NM*	NM*	NM*	92	30.4	NM*
HSVE-084	Zone 5	Rand	--	--	--	--	--	634,000	296,000	29	0.0	0.0	7,647	2,615	116	0.0	0.0

TABLE 4. EXTRACTION FLOW RATE AND MASS REMOVAL ESTIMATES

HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

			January 2016					February 2016					March 2016				
Location	Zone	Stratum	TVPH (ppmv)	PHC (ppmv)	Vacuum (in-H_2O)	Flow Rate (scfm)	Mass Recovery Rate (lbs/day)	TVPH (ppmv)	PHC (ppmv)	Vacuum (in-H_2O)	Flow Rate (scfm)	Mass Recovery Rate (lbs/day)	TVPH (ppmv)	PHC (ppmv)	Vacuum (in-H_2O)	Flow Rate (scfm)	Mass Recovery Rate (lbs/day)
HSVE-085	Zone 5	Rand	680	515	133	5.4	0.9	9,020	3,961	137	6.9	9.0	12,600	8,694	133	4.9	13.9
HSVE-086	Zone 5	N. Olive	30	30	128	29.3	0.3	194	167	134	23.3	1.3	293	252	130	29.3	2.4
HSVE-087	Zone 4	Rand	40	37	122	10.2	0.1	1,720	1,050	131	10.8	3.7	2,787	2,088	132	7.6	5.2
HSVE-088	Zone 4	Rand	--	--	--	--	--	1,943	291	17	0.0	0.0	1,966	363	20	5.8	0.7
HSVE-089	Zone 4	N. Olive	25	22	--	--	--	2,442	921	32	11.0	3.3	1,156	472	129	9.3	1.4
HSVE-090	Zone 4	Main Silt	--	--	--	--	--	--	--	--	--	--	75,450	9,650	--	--	--
HSVE-091	Zone 4	Main Silt	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HSVE-092	Zone 4	N. Olive	70	42	41	10.0	0.1	1,512	158	135	60.9	3.2	158	58	--	--	--
HSVE-093	Zone 4	Main Silt	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HSVE-094	Zone 4	Main Silt	--	--	--	--	--	--	--	--	--	--	5,368	452	--	--	--
HSVE-095	Zone 4	Main Silt	18	11	--	--	--	25	12	92	10.3	0.0	320	232	123	17.0	1.3
HSVE-096	Zone 4	Rand	2,600	2,080	--	--	--	342	286	20	28.3	2.6	1,172	1,123	81	8.9	3.3
HSVE-097	Zone 4	Rand	NM*	NM*	128	0.0	NM*	69	56	128	22.6	0.4	322	282	127	16.3	1.5
HSVE-098	Zone 2	A/B Clay	1,867	1,788	108	5.2	3.0	3,920	2,962	120	21.2	20.6	3,580	2,506	124	20.7	16.9
HSVE-099	Zone 6	Multiple Strata	95	21	131	46.7	0.3	13,200	2,400	104	48.1	37.7	111,200	48,994	115	29.8	478.2
HSVE-100	Zone 5	N. Olive	382	247	--	--	--	27,800	12,943	120	10.6	44.8	7,351	2,677	124	10.2	9.0
HSVE-101	Zone 5	N. Olive	290	98	--	--	--	851	440	127	12.8	1.8	273	126	133	9.0	0.4
HSVE-102	Zone 1	N. Olive	407	8	114	34.5	0.1	2,471	78	--	--	--	1,993	157	103	15.1	0.8
HSVE-103	Zone 1	A/B Clay	38	35	97	27.8	0.3	117	88	76	14.7	0.4	347	343	84	17.1	1.9
HSVE-105D	Zone 1	Main Sand	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HSVE-105S	Zone 1	N. Olive	55	38	121	32.1	0.4	130	104	108	52.3	1.8	378	378	117	46.6	5.8
HSVE-106D	Zone 1	Main Sand	--	--	--	--	--	--	--	--	--	--	32	32	--	--	--
HSVE-106S	Zone 1	N. Olive	4	4	113	29.9	0.0	56	56	106	45.7	0.8	30	27	104	66.4	0.6
HSVE-107D	Zone 1	Main Sand	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HSVE-107S	Zone 1	Multiple Strata	8,920	3,821	115	31.2	39.0	67	60	106	52.6	1.0	362	362	113	59.2	7.0
MPE-A002	Area A	Main Sand	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TOTAL FLOW RATE AND MASS REMOVAL BASED ON WELL-BY-WELL EVALUATION						**2,177**	**307**				**1,999**	**992**				**2,017**	**2,902**
TOTAL MASS REMOVAL BASED ON SVE MAIN HEADER MEASUREMENTS			375	178	154	**1,095**	**64**	2,646	1,210	149	**1,470**	**582**	2,900	1,371	151	**1,415**	**634**

Notes:
TVPH - total volatile petroleum hydrocarbons
PHC - petroleum hydrocarbons
scfm - standard cubic feet per minute
ppmv - parts per million by volume
lbs/day - pounds per day
NM* - not measured due to occluded well screen
NM** - not measured, well has a straw stinger and flow rate cannot be m
NM*** - not measured, water in pitot tube
-- - well was not operating during this time period

TABLE 5. INTERIM IN-HOME MONITORING NETWORK

HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location	Monitoring Frequency	Included in Event Based Monitoring	Mitigation Measures	Notes
107 W Birch	Weekly	Yes	Foundation Sealed, AllerAir Purifier	
117 W Birch	Weekly	Yes	Ventilation System	Monitoring suspended from April - May 2014 and July - September 2016 due to sanitary issues
119 W Date	Weekly	Yes	Ventilation System	
129 W Birch	Weekly	Yes	Foundation Sealed, AllerAir Purifier (2)	
504 N Delmar	Weekly	Yes	Ventilation System	
507 N Olive	Weekly	Yes	Sub-Slab Depressurization System, AllerAir Purifier	
516 N Delmar	Weekly	Yes	Ventilation System, AllerAir Purifier	
610 N Old St. Louis	Weekly	Yes	Foundation Sealed, AllerAir Purifier (2)	
715 N Delmar	Weekly	Yes	Ventilation System, AllerAir Purifier, Sub-Slab Vapor Extraction	
100 W Cherry	Quarterly	Yes	Foundation Sealed	
101 E Birch	Quarterly	Yes	Sub-Slab Depressurization System, AllerAir Purifier	
101 E Forest	Quarterly	Yes	Ventilation System	
101 E Watkins	Quarterly	No	Foundation Sealed	
102 E Date	Quarterly	No	Ventilation System	
102 W Date	Quarterly	Yes	Foundation Sealed	Structure vacated in December 2015, current occupancy status not determined
104 W Elm	Quarterly	Yes	Ventilation System	
107 W Forest	Quarterly	Yes	Ventilation System	
111 W Date	Quarterly	Yes	Foundation Sealed	
112 W Birch	Quarterly	Yes	Sub-Slab Depressurization System, AllerAir Purifier	Structure vacated in May 2016, current occupancy status not determined
114 E Forest	Quarterly	No	Ventilation System	
116 E Watkins	Quarterly	Yes	Ventilation System	
118 E Elm	Quarterly	Yes	Ventilation System	
118 W Birch	Quarterly	Yes	Foundation Sealed, AllerAir Purifier	
118 W Cherry	Quarterly	No	Ventilation System	
118 W Elm	Quarterly	Yes	Foundation Sealed	

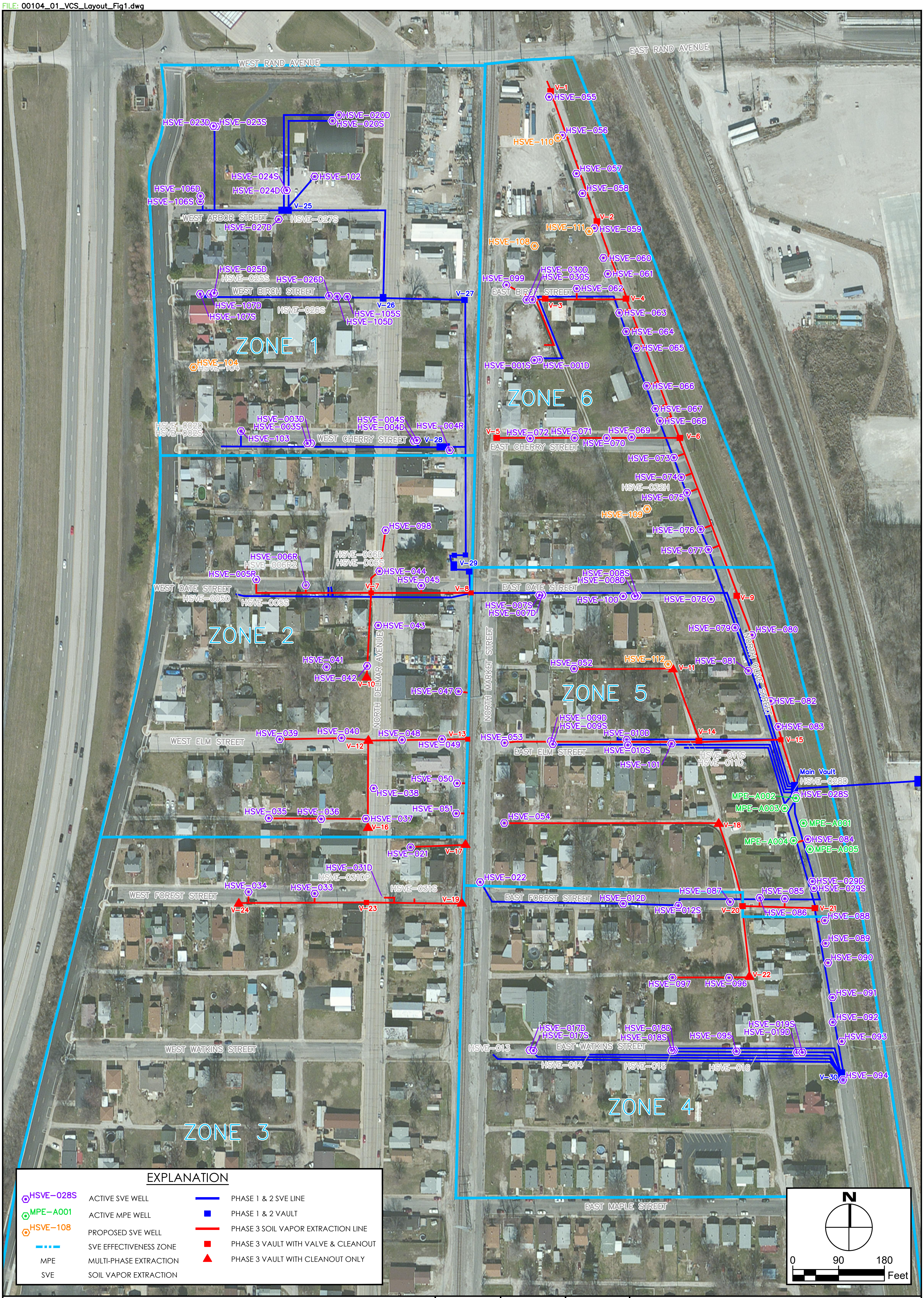
TABLE 5. INTERIM IN-HOME MONITORING NETWORK

HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location	Monitoring Frequency	Included in Event Based Monitoring	Mitigation Measures	Notes
119 W Birch	Quarterly	Yes	Ventilation System	
119 W Cherry	Quarterly	Yes	Ventilation System	Weekly monitoring discontinued in July 2015; resident agreed to quarterly and event monitoring
122 W Cherry	Quarterly	No	Foundation Sealed	
122 W Date	Quarterly	No	Foundation Sealed	
122 W Watkins	Quarterly	Yes	Ventilation System	
123 E Elm	--	No	Foundation Sealed, AllerAir Purifier	Monitoring discontinued in November 2015 due to flea infestation
125 E Forest	Quarterly	Yes	Ventilation System	
125 W Birch	Quarterly	Yes	Ventilation System	Weekly monitoring discontinued in April 2015; resident agreed to quarterly and event monitoring
125 W Birch Rear	Quarterly	Yes	Ventilation System	Weekly monitoring discontinued in April 2015; resident agreed to quarterly and event monitoring
126 E Elm	Quarterly	No	Ventilation System	
127 E Elm	Quarterly	No	Foundation Sealed	
128 W Cherry	--	No	Ventilation System	Monitoring discontinued in August 2016 due to flea infestation
134 E Watkins	Quarterly	Yes	Sub-Slab Depressurization System, Ventilation System, Foundation Sealed	Added to monitoring network as replacement for 142 E Watkins in November 2015
138 W Forest	--	No	Ventilation System	Access denied since July 2011
142 E Watkins	--	--	Ventilation System	Monitoring suspended in November 2015 due to excess items/debris in basement
201 N Olive	Quarterly	Yes	Ventilation System	
309 N Olive	Quarterly	Yes	Ventilation System	
310 N Delmar	Quarterly	Yes	Ventilation System	
501 N Olive	Quarterly	Yes	Foundation Sealed	
518 N Delmar	Quarterly	Yes	AllerAir Purifier	
619 N Olive	Quarterly	Yes	Foundation Sealed	

FIGURES

FILE: 00104_01_VCS_Layout_Fig1.dwg



TITLE: FIGURE 1. HARTFORD VAPOR COLLECTION SYSTEM LAYOUT	1" = 180' SCALE.	17-001-04 PROJECT NO.	07/26/17 DATE.
SITE: HARTFORD PETROLEUM RELEASE SITE HARTFORD, ILLINOIS	CDM DRAWN.	PEM CHECKED.	REV. 1 REVISION.

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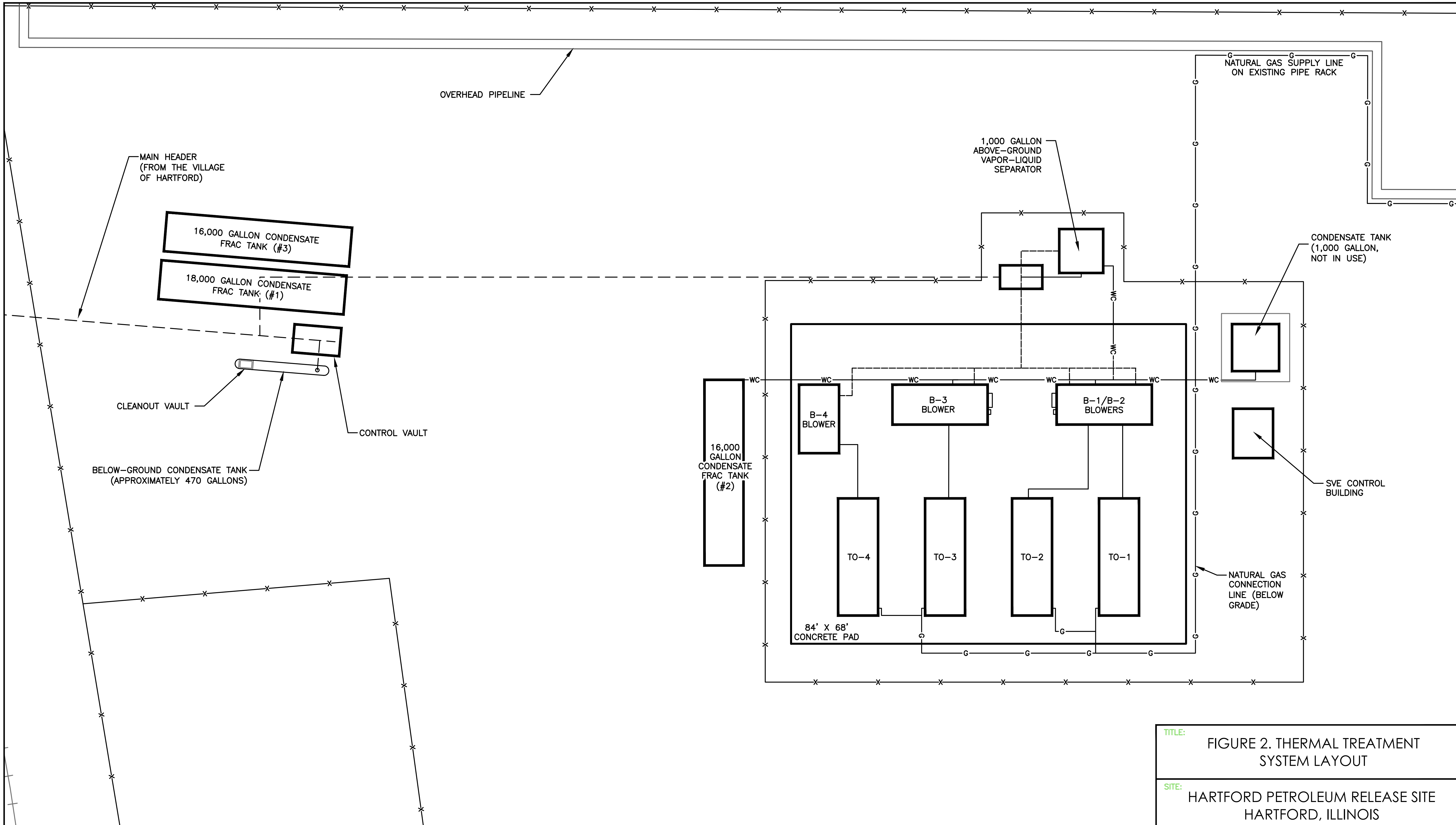

EXPLANATION

— — —	BELOW-GROUND SVE LINE (FROM VILLAGE OF HARTFORD)	—x—	GUARD RAIL
-------	ABOVE-GROUND VAPOR LINE	—WC—	WATER CONDENSATE LINE
—G—	NATURAL GAS SUPPLY LINE	TO	THERMAL OXIDIZER

TITLE: FIGURE 2. THERMAL TREATMENT SYSTEM LAYOUT

SITE: HARTFORD PETROLEUM RELEASE SITE HARTFORD, ILLINOIS

1" = 20' SCALE.	17-001-04 PROJECT NO.	07/26/17 DATE.
CDM DRAWN.	PEM CHECKED.	REV. 1 REVISION.

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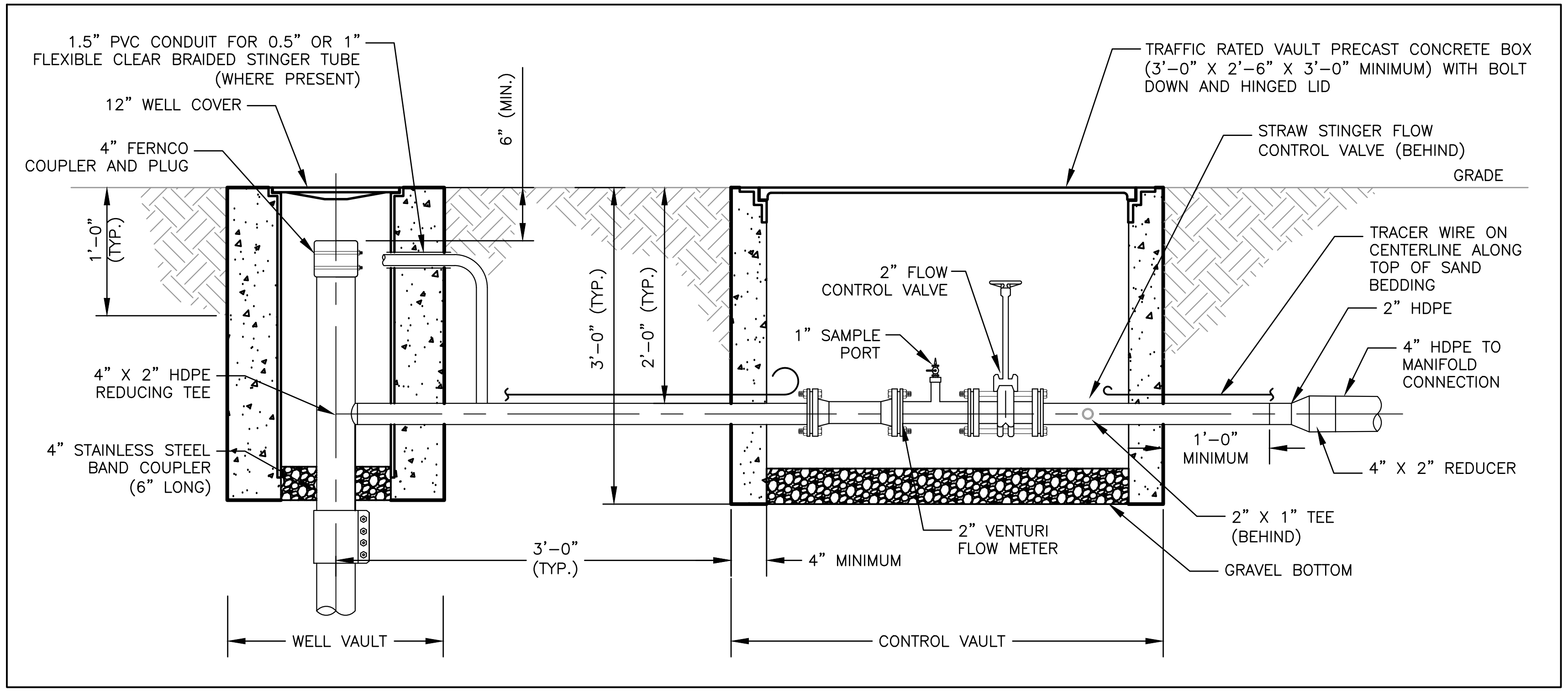
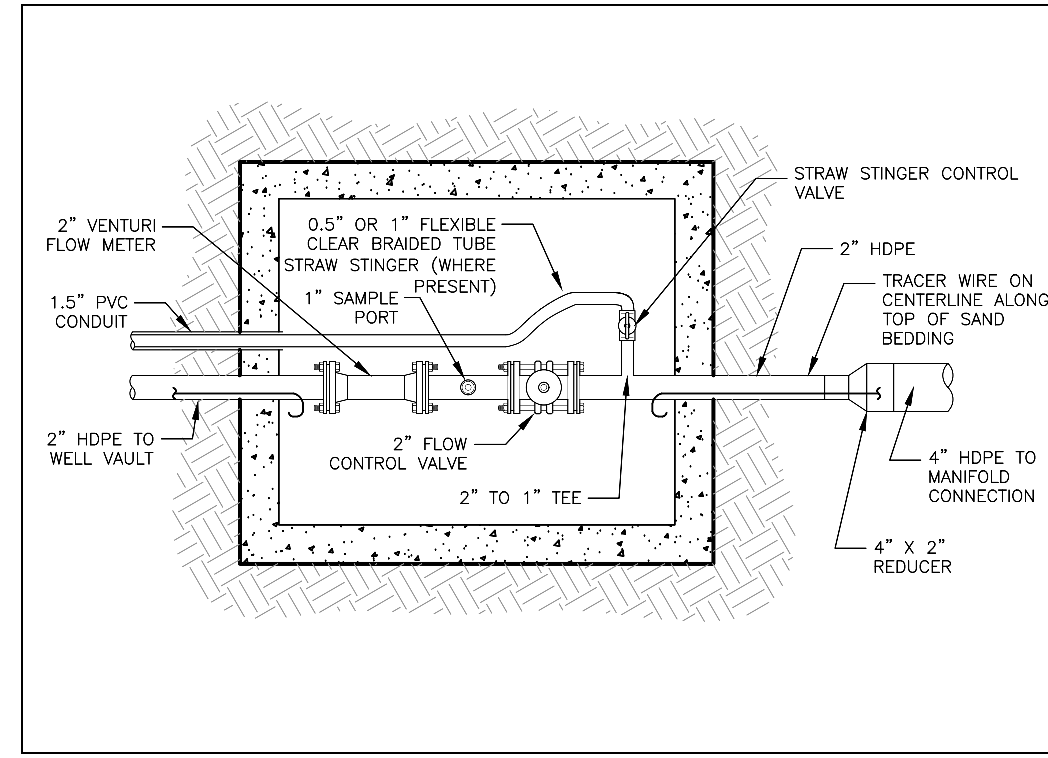
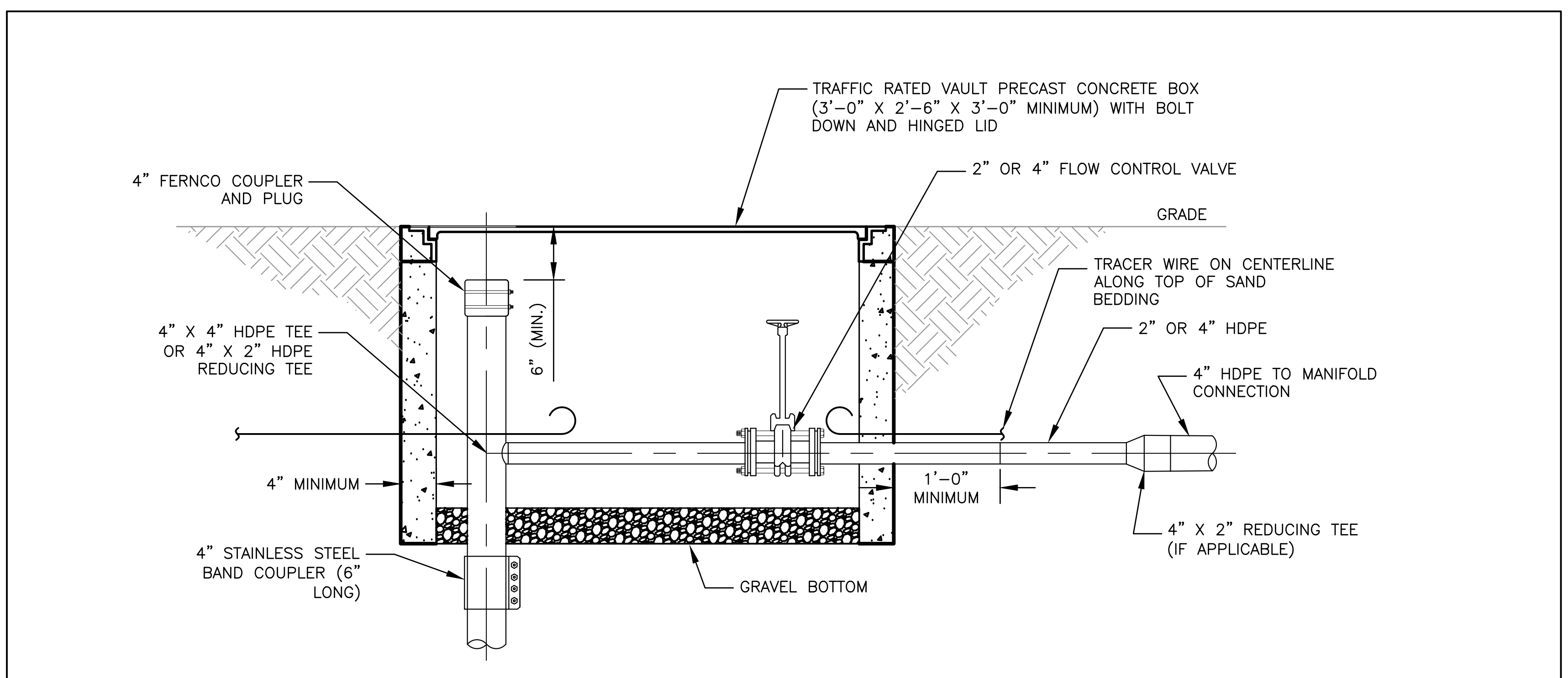
FILE: 00104_02_TTU_Layout_Fig2.dwg



(A) PHASE III TYPICAL WELLHEAD COMPLETION
NOT TO SCALE



(B) PHASE III TYPICAL CONTROL VAULT - PLAN VIEW
NOT TO SCALE



(C) PHASE I/II TYPICAL WELLHEAD COMPLETION
NOT TO SCALE

TITLE: FIGURE 3. TYPICAL EXTRACTION WELLHEAD COMPLETION DETAIL		
SITE: HARTFORD PETROLEUM RELEASE SITE HARTFORD, ILLINOIS		
NA SCALE.	17-001-04 PROJECT NO.	07/26/17 DATE.
CDM DRAWN.	PEM CHECKED.	REV. 1 REVISION.

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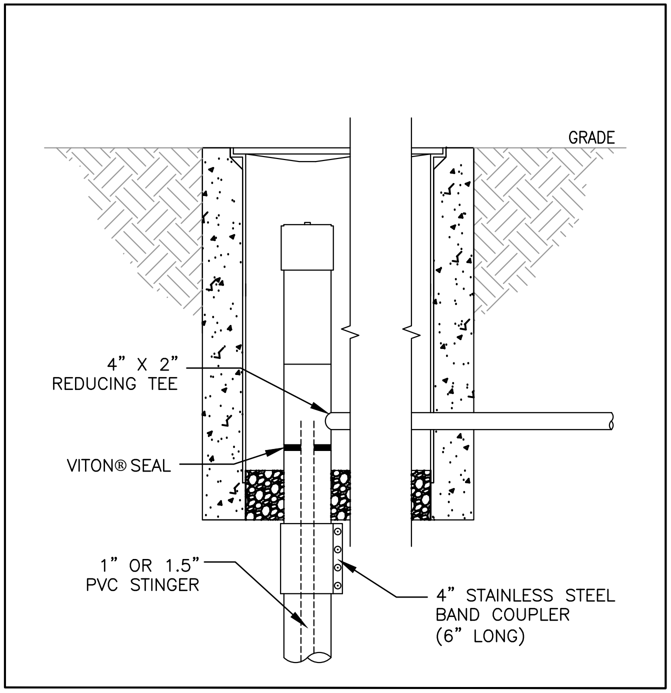
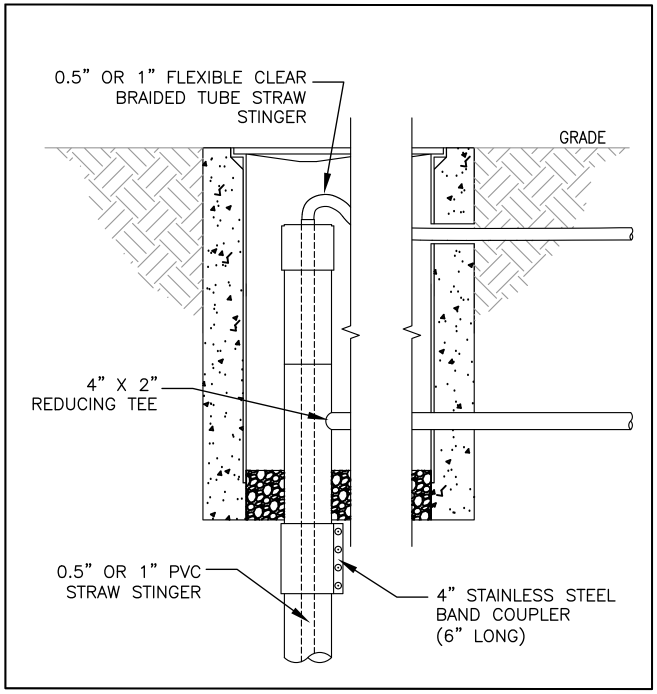
FILE: 00104_03&04_TypSVE_Details_Fig3&4.dwg

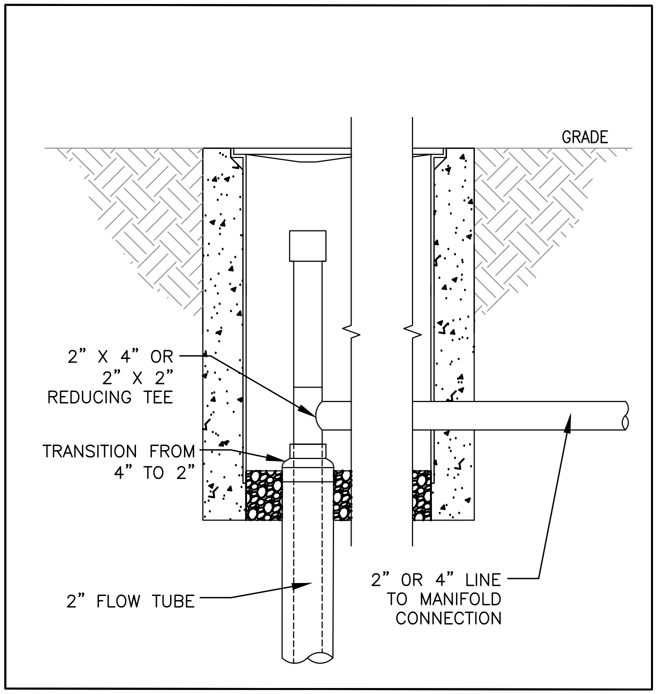
FILE: 00104_03&04_TypSVE_Details_Fig3&4.dwg



A **VITON® SEAL STINGER DETAIL**
NOT TO SCALE



B **STRAW STINGER DETAIL**
NOT TO SCALE



C **FLOW TUBE DETAIL**
NOT TO SCALE

TITLE: FIGURE 4. TYPICAL STINGER DETAIL	NA SCALE.	17-001-04 PROJECT NO.	07/26/17 DATE.
SITE: HARTFORD PETROLEUM RELEASE SITE HARTFORD, ILLINOIS	CDM DRAWN.	PEM CHECKED.	REV. 1 REVISION.

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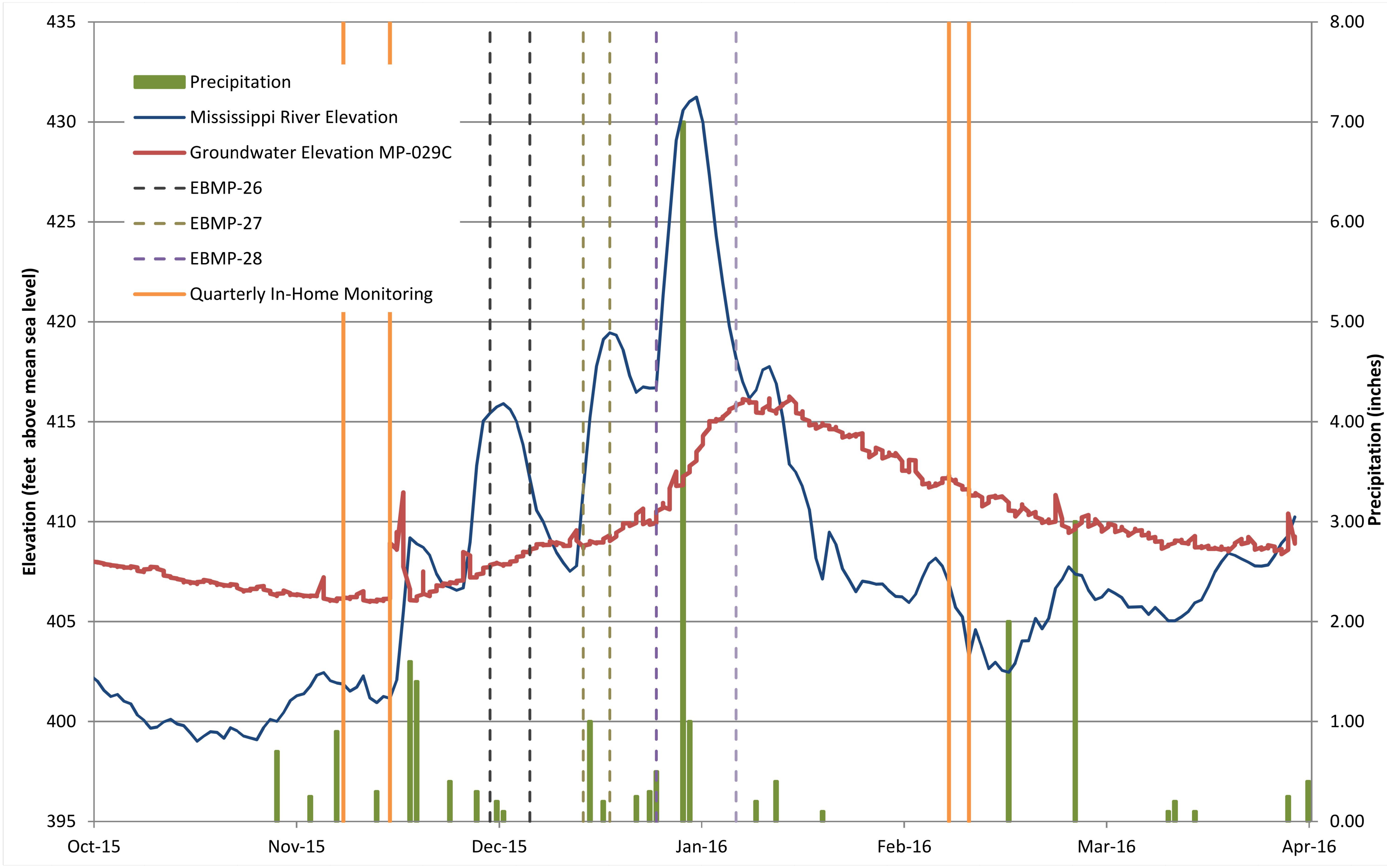
FILE: 00104_05_PercentOp_Fig5.dwg

TITLE: FIGURE 5. SUMMARY OF EXTRACTION WELL PERCENT OPERATION	1" = 180' SCALE.	17-001-04 PROJECT NO.	07/26/17 DATE.	TWOONETWO ENVIRONMENTAL 2021 Auburn Avenue Third Floor Suites Cincinnati, Ohio 45219
SITE: HARTFORD PETROLEUM RELEASE SITE HARTFORD, ILLINOIS	CDM DRAWN.	PEM CHECKED.	REV. 1 REVISION.	

FILE: 00104_06&07_RiverStageOpWells_Fig6&7.dwg



TITLE: FIGURE 6. SUMMARY OF RIVER STAGE AND GROUNDWATER ELEVATION IN THE RAND STRATUM	NA SCALE.	17-001-04 PROJECT NO.	07/26/17 DATE.
SITE: HARTFORD PETROLEUM RELEASE SITE HARTFORD, ILLINOIS	CDM DRAWN.	PEM CHECKED.	REV. 1 REVISION.

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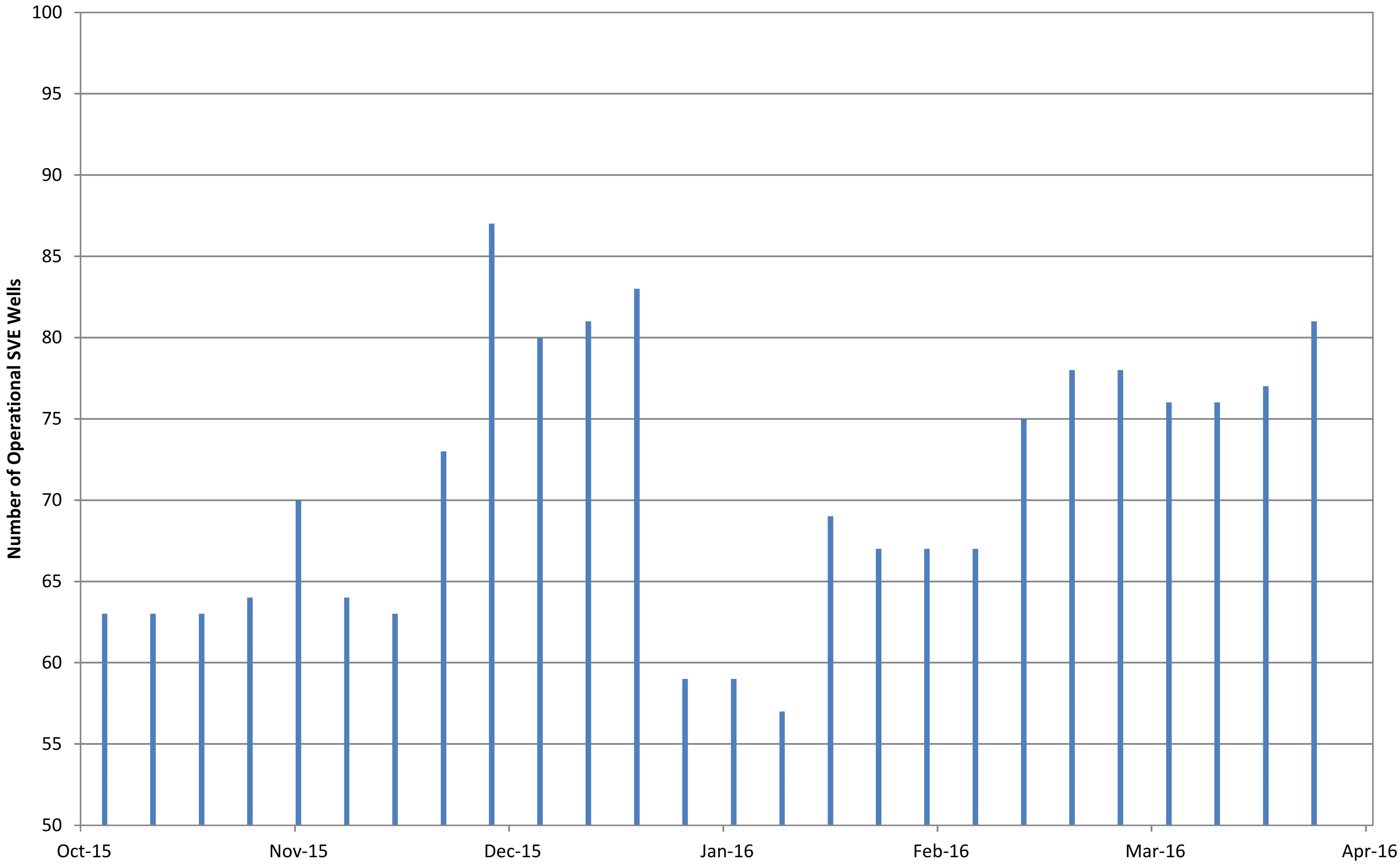
FILE: 00104_06&07_RiverStageOpWells_Fig6&7.dwg



TITLE: FIGURE 7. WEEKLY SUMMARY OF OPERATING EXTRACTION WELLS	NA SCALE.	17-001-04 PROJECT NO.	07/26/17 DATE.
SITE: HARTFORD PETROLEUM RELEASE SITE HARTFORD, ILLINOIS	CDM DRAWN.	PEM CHECKED.	REV. 1 REVISION.

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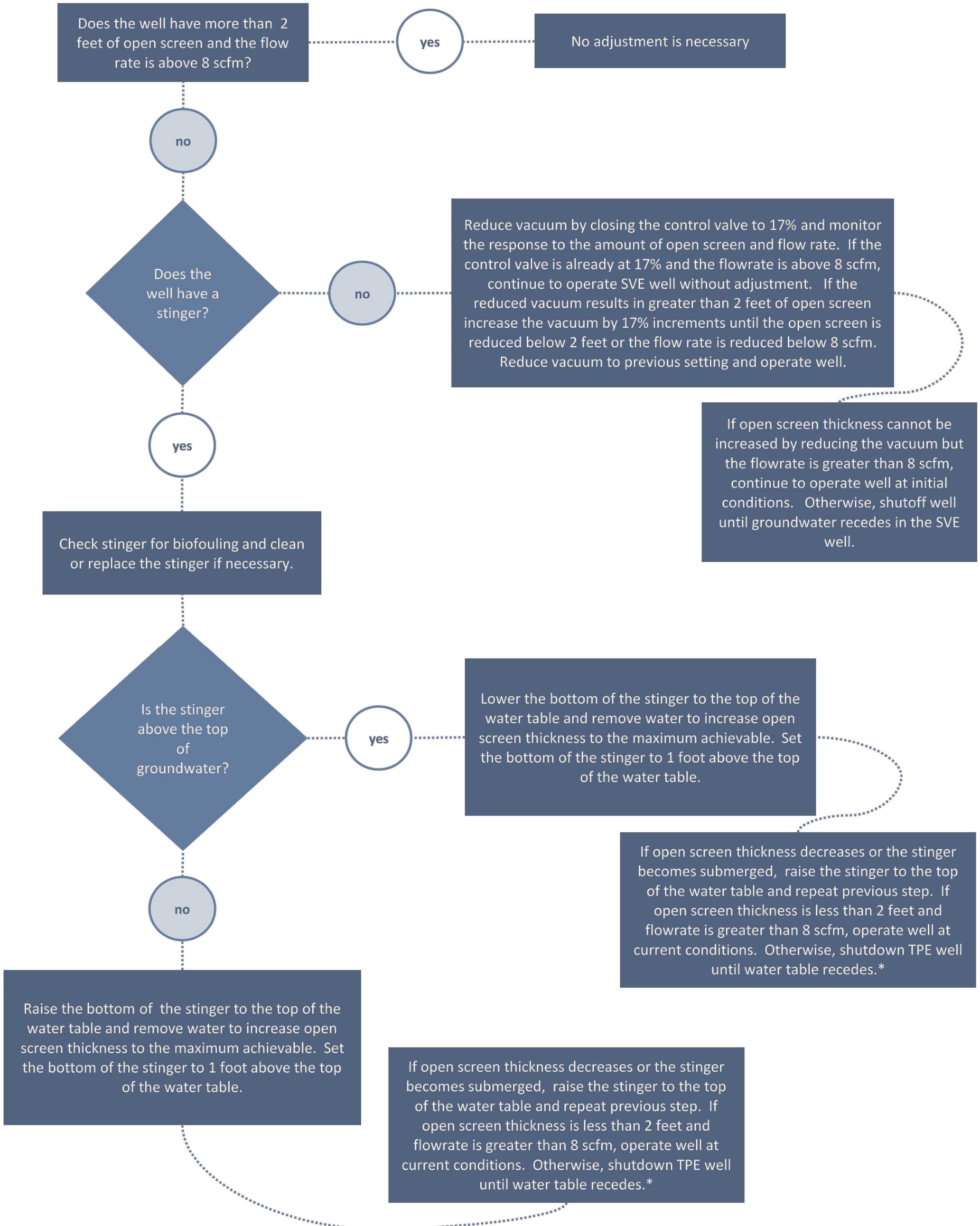

Notes:
* If there is a river stage triggered event, operation of a TPE well may continue as long as there is some open screen and the flowrate is greater than 0 scfm. Alternatively, if there are low water table conditions in the Rand stratum and the open screen is greater than 2 feet and the flowrate is greater than 8 scfm, the well may be shutdown if the total volatile hydrocarbon concentration measured using a flame ionization detector is below 100 ppmv. These modifications will be evaluated on a well by well basis and communicated with the Agencies.

TITLE: FIGURE 8. RATIONALE FOR WELL ADJUSTMENTS BASED ON OPEN SCREEN AND FLOW MEASUREMENTS	NA SCALE.	17-001-04 PROJECT NO.	07/26/17 DATE.	TWO ONE TWO ENVIRONMENTAL 2021 Auburn Avenue Third Floor Suites Cincinnati, Ohio 45219
SITE: HARTFORD PETROLEUM RELEASE SITE HARTFORD, ILLINOIS	CDM DRAWN.	PEM CHECKED.	REV. 1 REVISION.	

FILE: 00104_08_StingerAdjustments_Fig8.dwg

FILE: 00104_09_MassRecovery_Nov2015_AdjElevation_Fig9.dwg

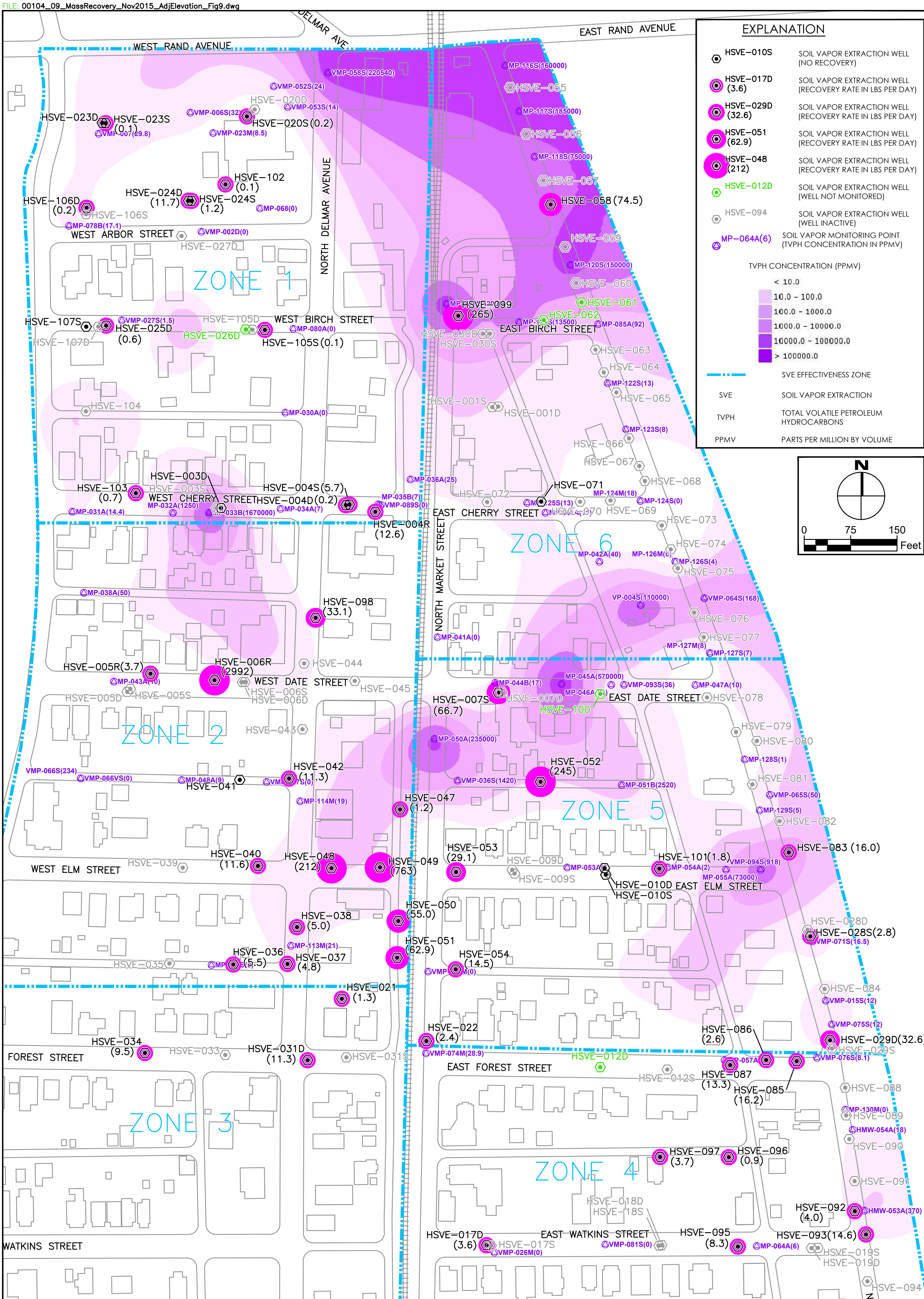

FIGURE 9. DISTRIBUTION OF TOTAL VOLATILE PETROLEUM HYDROCARBONS AND MASS RECOVERY RATE, NORTH OLIVE STRATUM (NOVEMBER 2015)

SITE: HARTFORD PETROLEUM RELEASE SITE
HARTFORD, ILLINOIS

SCALE	PROJECT NO.	DATE
1" = 150'	17-001-04	07/28/17
DRAWN	**CHECKED**	**REVISION**
CDM	PEM	REV. 1

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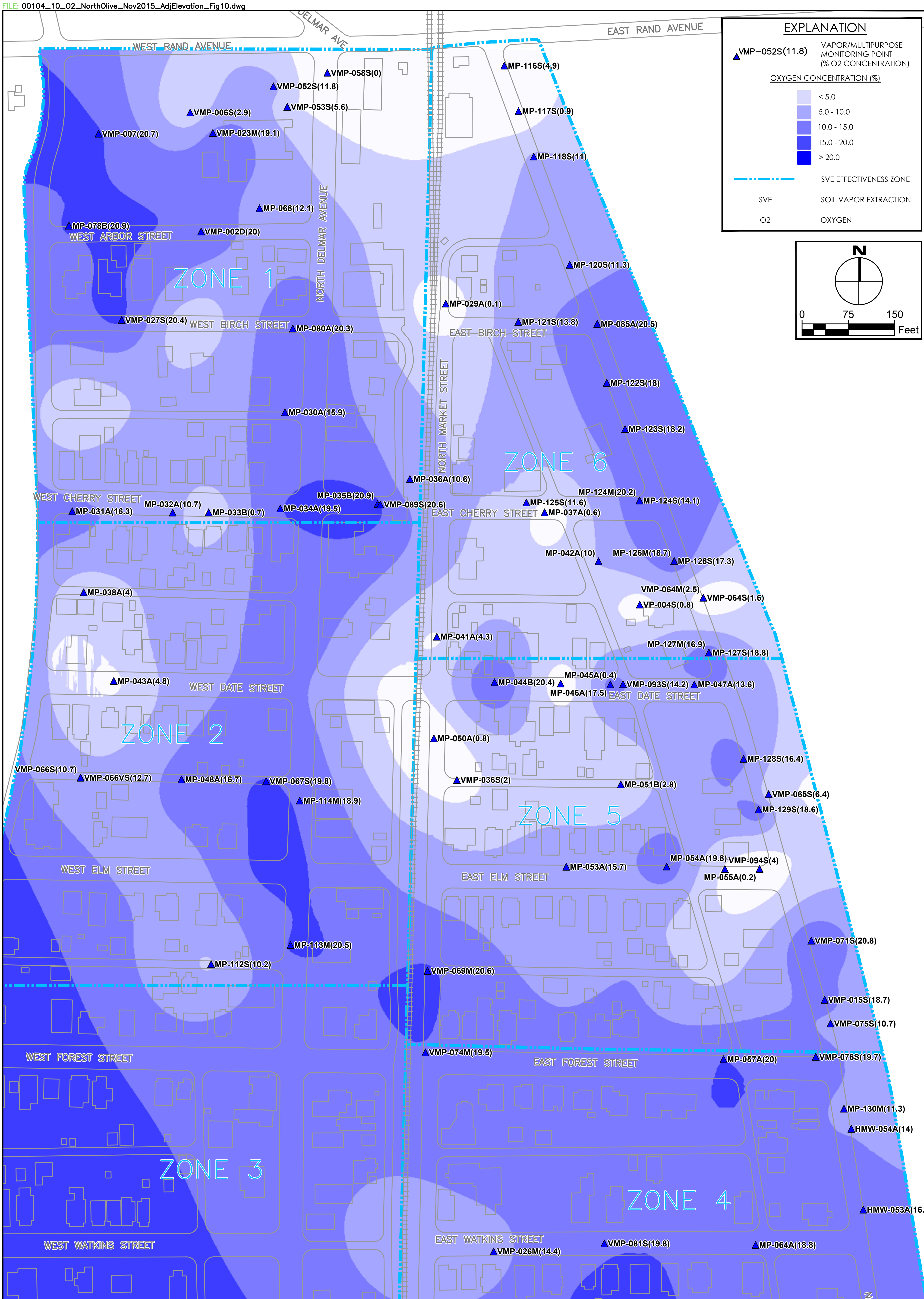
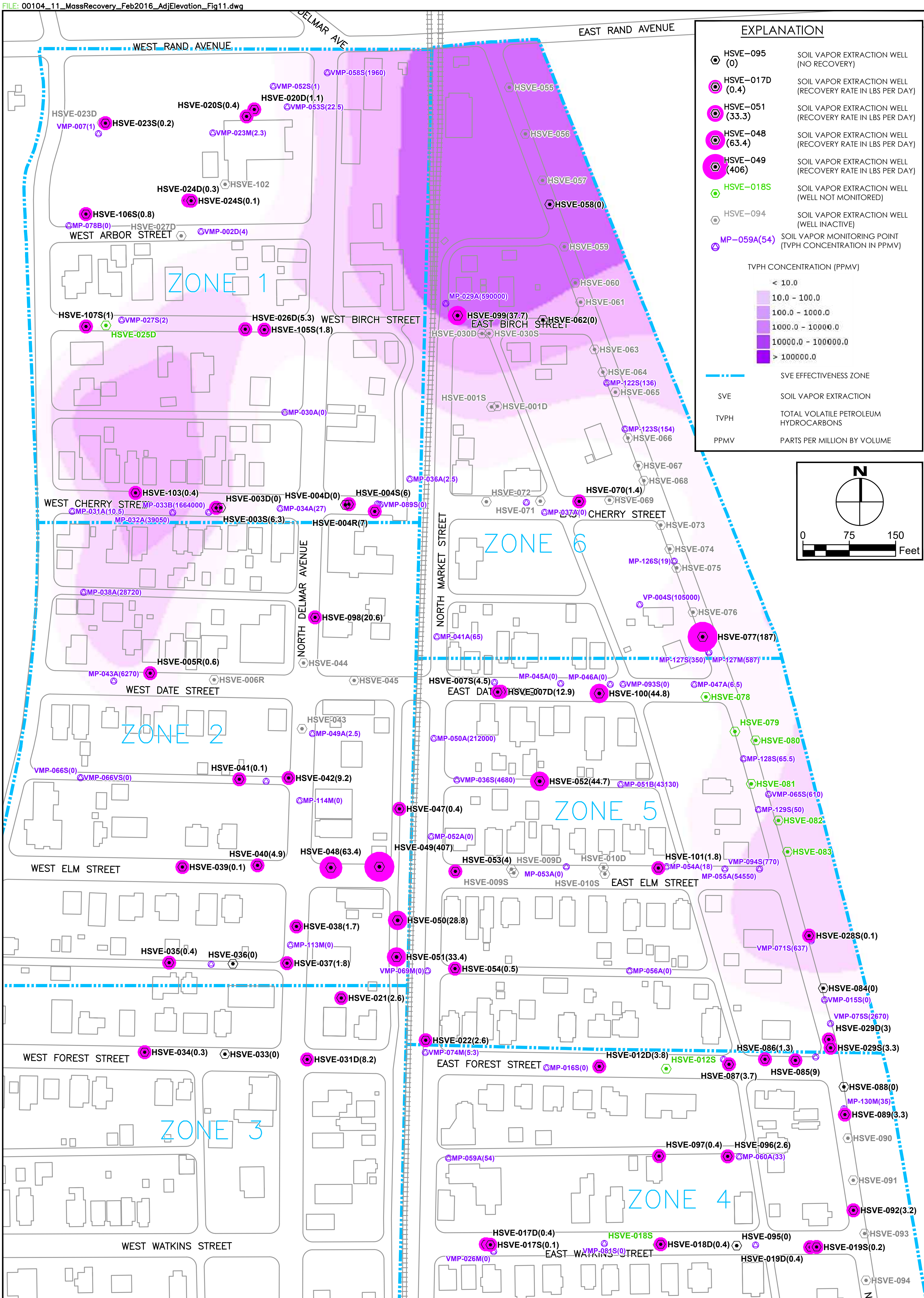
FILE: 00104_10_02_NorthOlive_Nov2015_AdjElevation_Fig10.dwg



TITLE: FIGURE 10. DISTRIBUTION OF OXYGEN, NORTH OLIVE STRATUM (NOVEMBER 2015)	1" = 150' SCALE.	17-001-04 PROJECT NO.	07/28/17 DATE.	TWO ONE TWO ENVIRONMENTAL 2021 Auburn Avenue Third Floor Suites Cincinnati, Ohio 45219
SITE: HARTFORD PETROLEUM RELEASE SITE HARTFORD, ILLINOIS	CDM DRAWN.	PEM CHECKED.	REV. 1 REVISION.	

FILE: 00104_11_MassRecovery_Feb2016_AdjElevation_Fig11.dwg



TITLE: FIGURE 11. DISTRIBUTION OF TOTAL VOLATILE PETROLEUM HYDROCARBONS AND MASS RECOVERY RATE, NORTH OLIVE STRATUM (FEBRUARY 2016)	1" = 150' SCALE.	17-001-04 PROJECT NO.	07/28/17 DATE.
SITE: HARTFORD PETROLEUM RELEASE SITE HARTFORD, ILLINOIS	CDM DRAWN.	PEM CHECKED.	REV. 1 REVISION.

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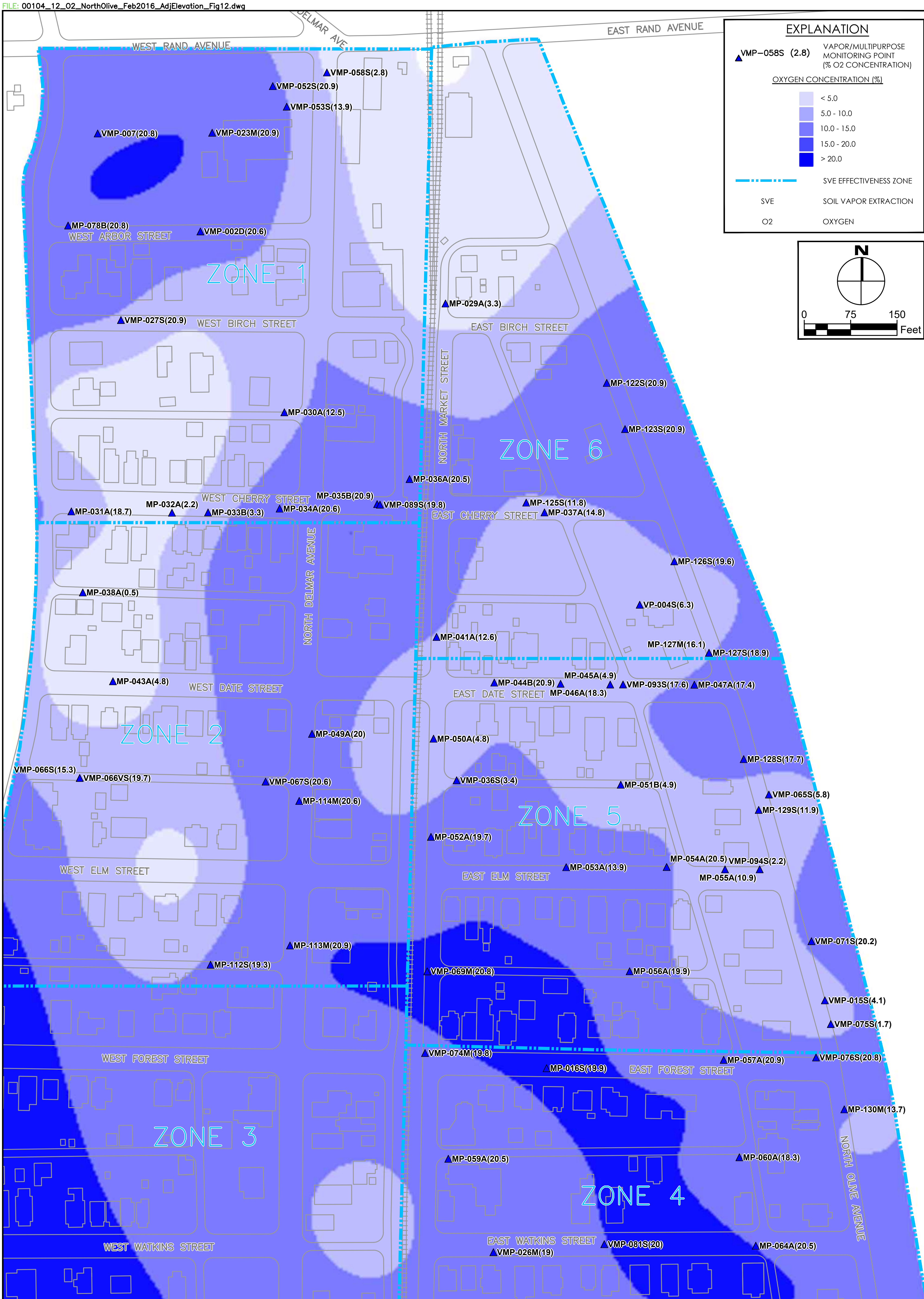
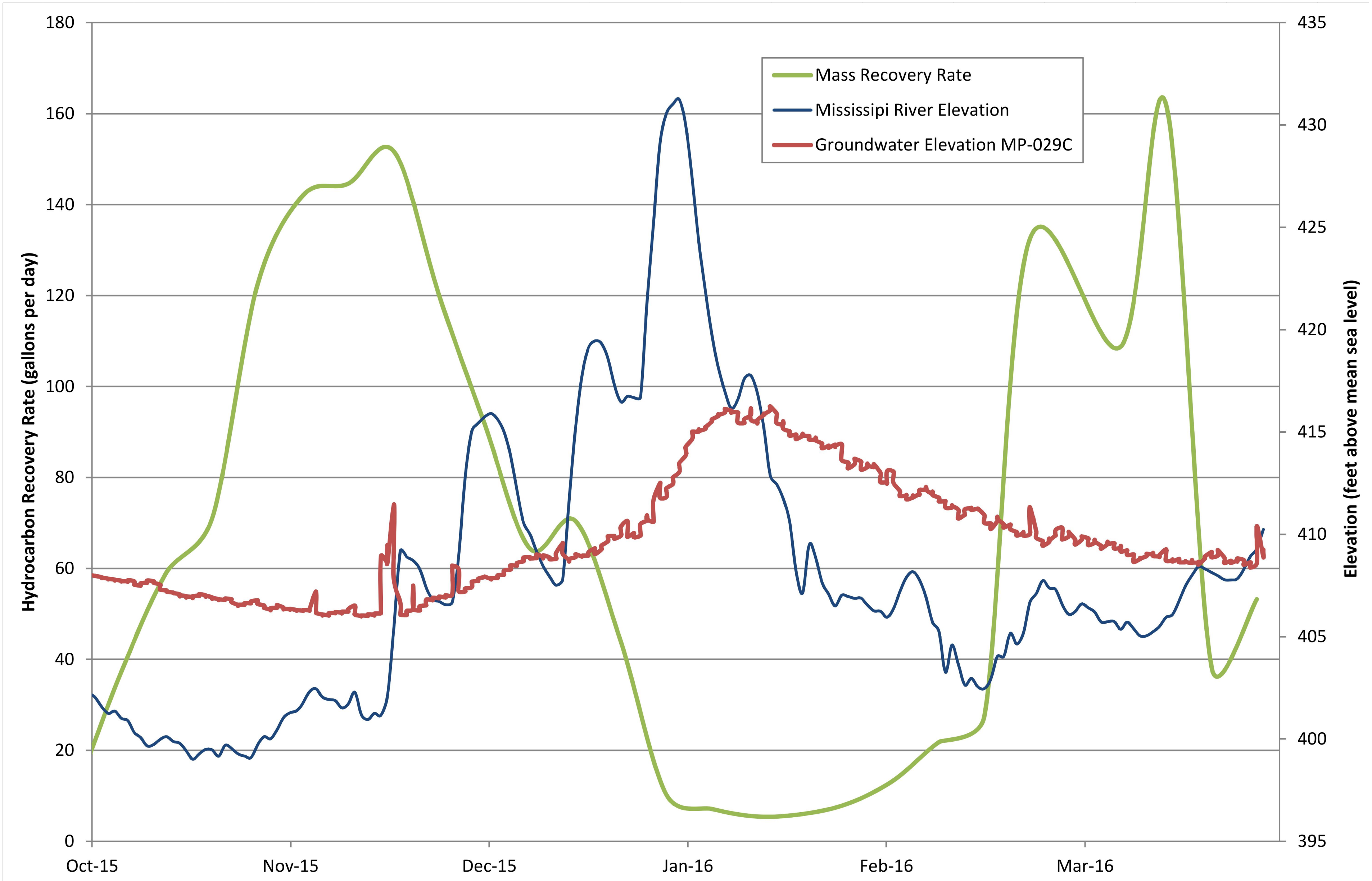
FILE: 00104_12_02_NorthOlive_Feb2016_AdjElevation_Fig12.dwg



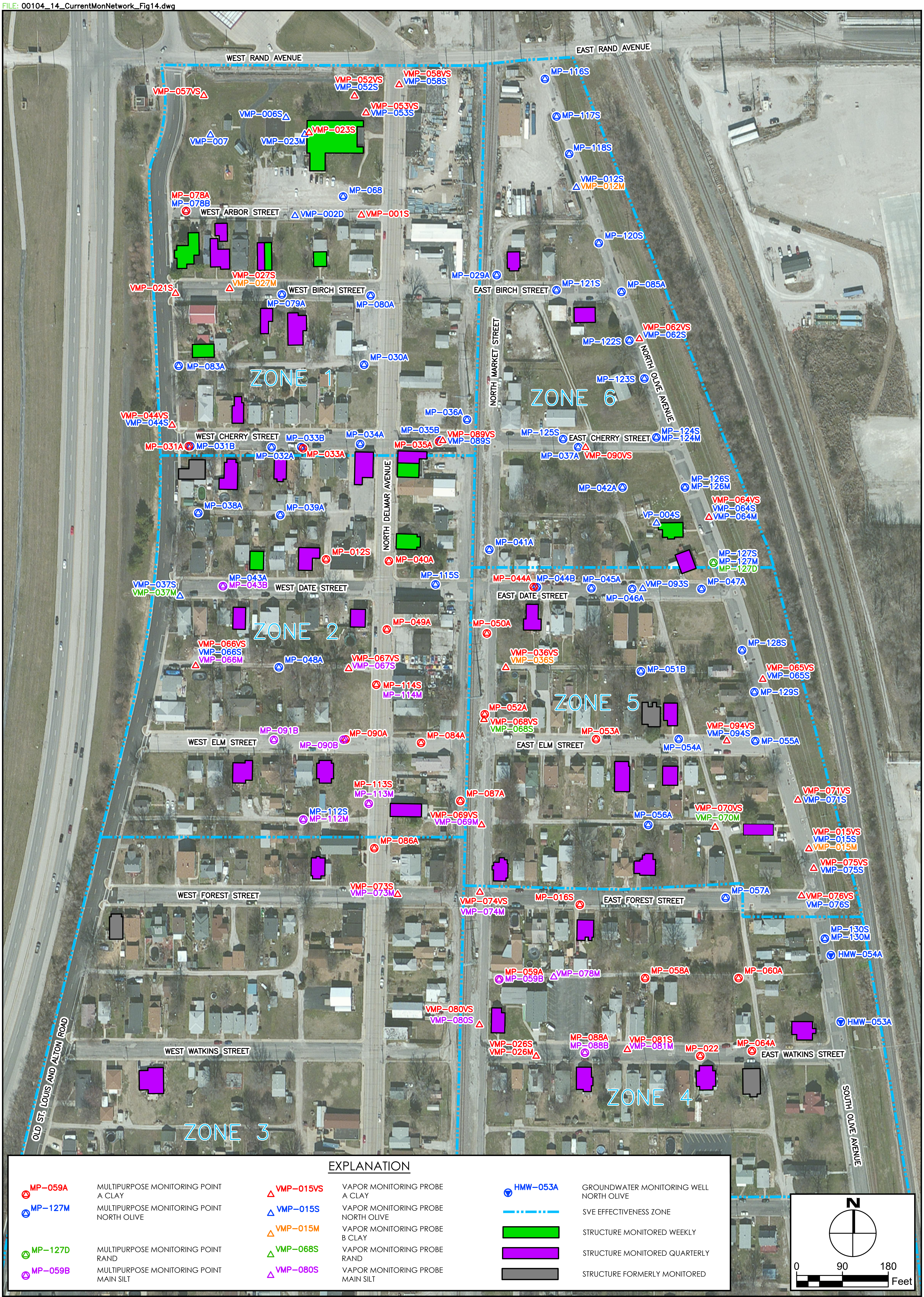
TITLE: FIGURE 12. DISTRIBUTION OF OXYGEN, NORTH OLIVE STRATUM (FEBRUARY 2016)	1" = 150' SCALE.	17-001-04 PROJECT NO.	07/28/17 DATE.	TWO ONE TWO ENVIRONMENTAL 2021 Auburn Avenue Third Floor Suites Cincinnati, Ohio 45219
SITE: HARTFORD PETROLEUM RELEASE SITE HARTFORD, ILLINOIS	CDM DRAWN.	PEM CHECKED.	REV. 1 REVISION.	

FILE: 00104_13_TTU_MassRecovery_Fig13.dwg



TITLE: FIGURE 13. THERMAL TREATMENT SYSTEM MASS RECOVERY RATE	NA SCALE.	17-001-04 PROJECT NO.	07/26/17 DATE.	TWO ONE TWO ENVIRONMENTAL 2021 Auburn Avenue Third Floor Suites Cincinnati, Ohio 45219
SITE: HARTFORD PETROLEUM RELEASE SITE HARTFORD, ILLINOIS	CDM DRAWN.	PEM CHECKED.	REV. 1 REVISION.	

FILE: 00104_14_CurrentMonNetwork_Fig14.dwg



TITLE: FIGURE 14. IN-HOME AND EFFECTIVENESS MONITORING NETWORKS	1" = 180' SCALE.	17-001-04 PROJECT NO.	07/26/17 DATE.
SITE: HARTFORD PETROLEUM RELEASE SITE HARTFORD, ILLINOIS	CDM DRAWN.	PEM CHECKED.	REV. 1 REVISION.

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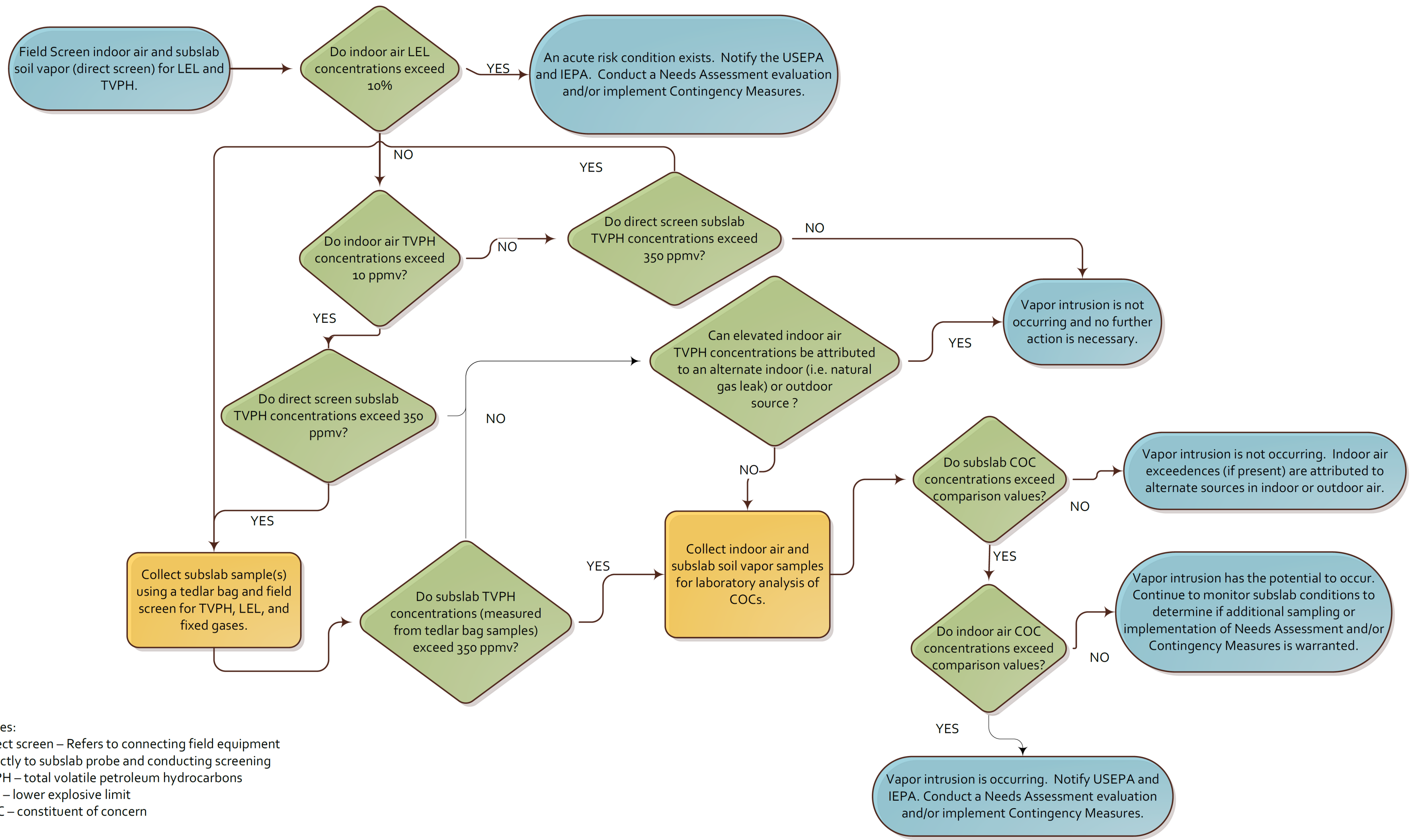
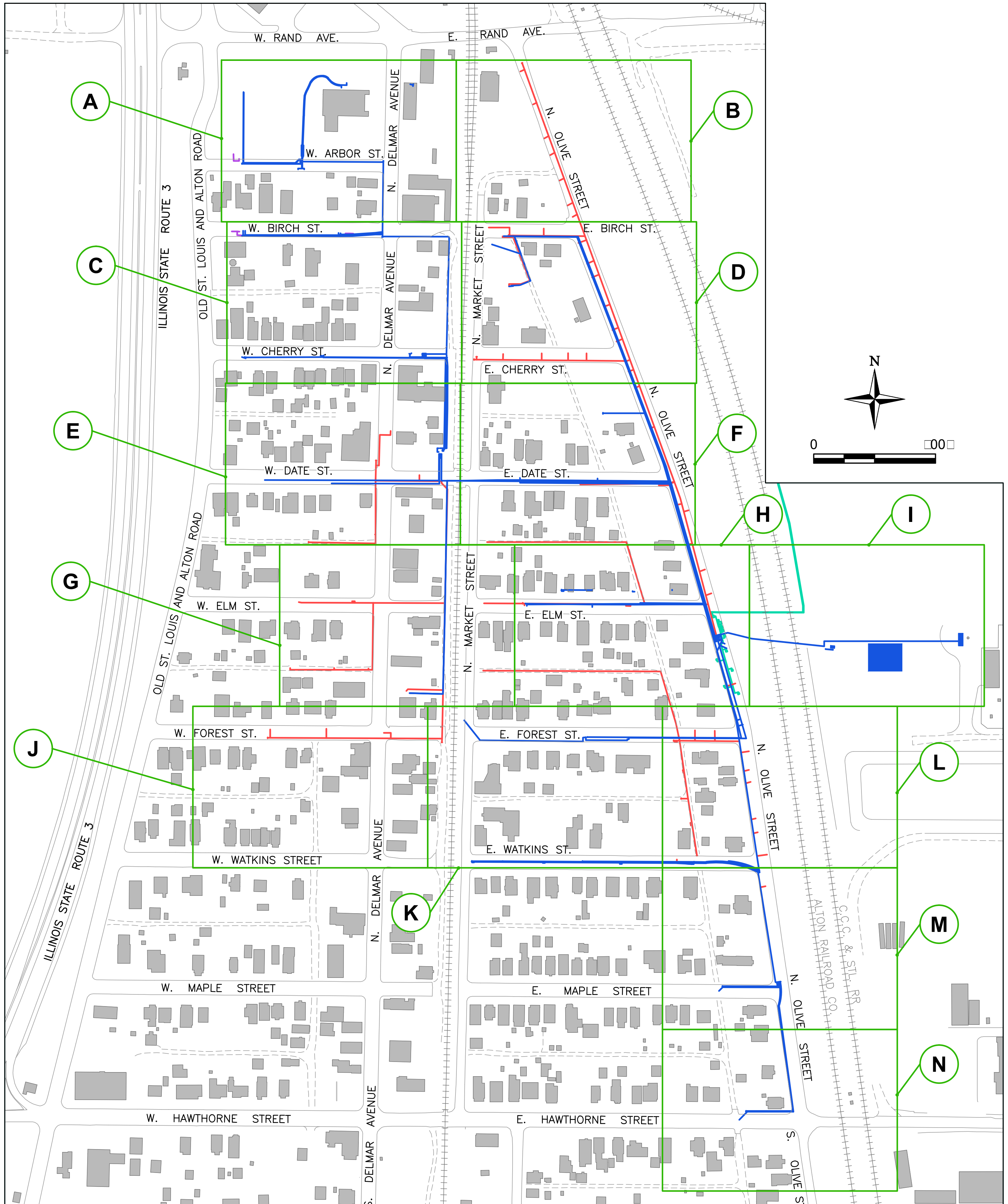
FILE: 00102_03_VI_PathwayDecisionFlowchart_201701.dwg



Notes:
Direct screen – Refers to connecting field equipment directly to subslab probe and conducting screening
TVPH – total volatile petroleum hydrocarbons
LEL – lower explosive limit
COC – constituent of concern

TITLE: FIGURE 15. VAPOR INTRUSION PATHWAY DECISION FLOWCHART	NA SCALE.	17-001-04 PROJECT NO.	07/26/17 DATE.	TWO ONE TWO ENVIRONMENTAL 2021 Auburn Avenue Third Floor Suites Cincinnati, Ohio 45219
SITE: HARTFORD PETROLEUM RELEASE SITE HARTFORD, ILLINOIS	PM DRAWN.	ST CHECKED.	REV. 1 REVISION.	

APPENDIX A



NOTE:

[illegible]
PROVIDED BY AECOM ON BEHALF OF THE HARTFORD WORKING GROUP. THE
[illegible]
THE AS-BUILT/RECORD DRAWINGS. THEREFORE, THE SUBSURFACE SYSTEM
[illegible]
WIRE, GROUND PENETRATING RADAR, ETC.).

N

0 [illegible]00

EXPLANATION

HMW-040A

MPE-A004

RW-002

VP-001

VCB-001

HSVE-017S

HSVE-027S

VMP-042S

MP-069

Trihydro CORPORATION

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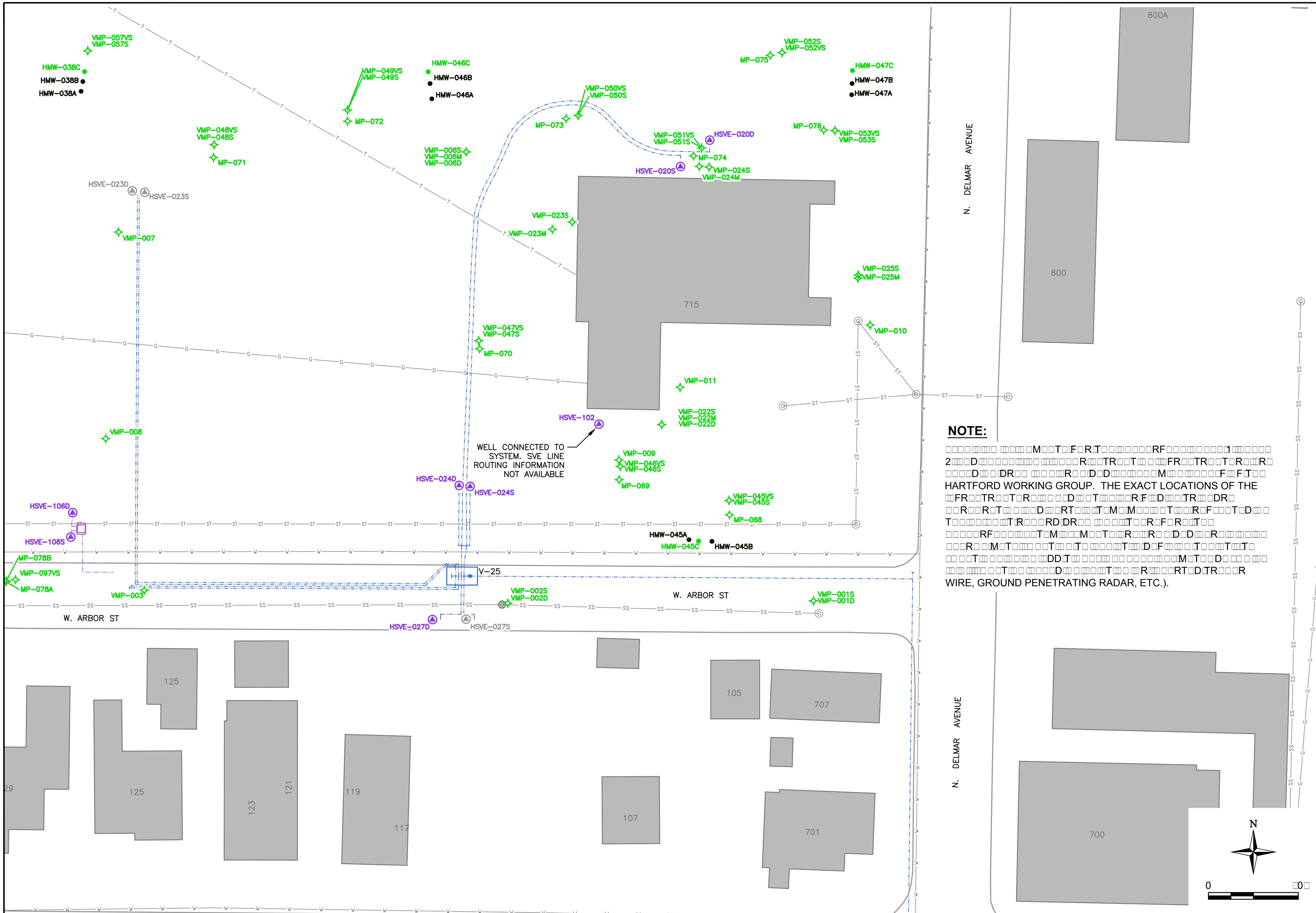
OVERVIEW MAP

RECORD DRAWING SET FOR UTILITY LOCATION
HARTFORD PETROLEUM RELEASE SITE
HARTFORD, ILLINOIS

1



NOTE:

HARTFORD WORKING GROUP. THE EXACT LOCATIONS OF THE

WIRE, GROUND PENETRATING RADAR, ETC.).

DETAIL AREA A

RECORD DRAWING SET FOR UTILITY LOCATION
HARTFORD PETROLEUM RELEASE SITE
HARTFORD, ILLINOIS

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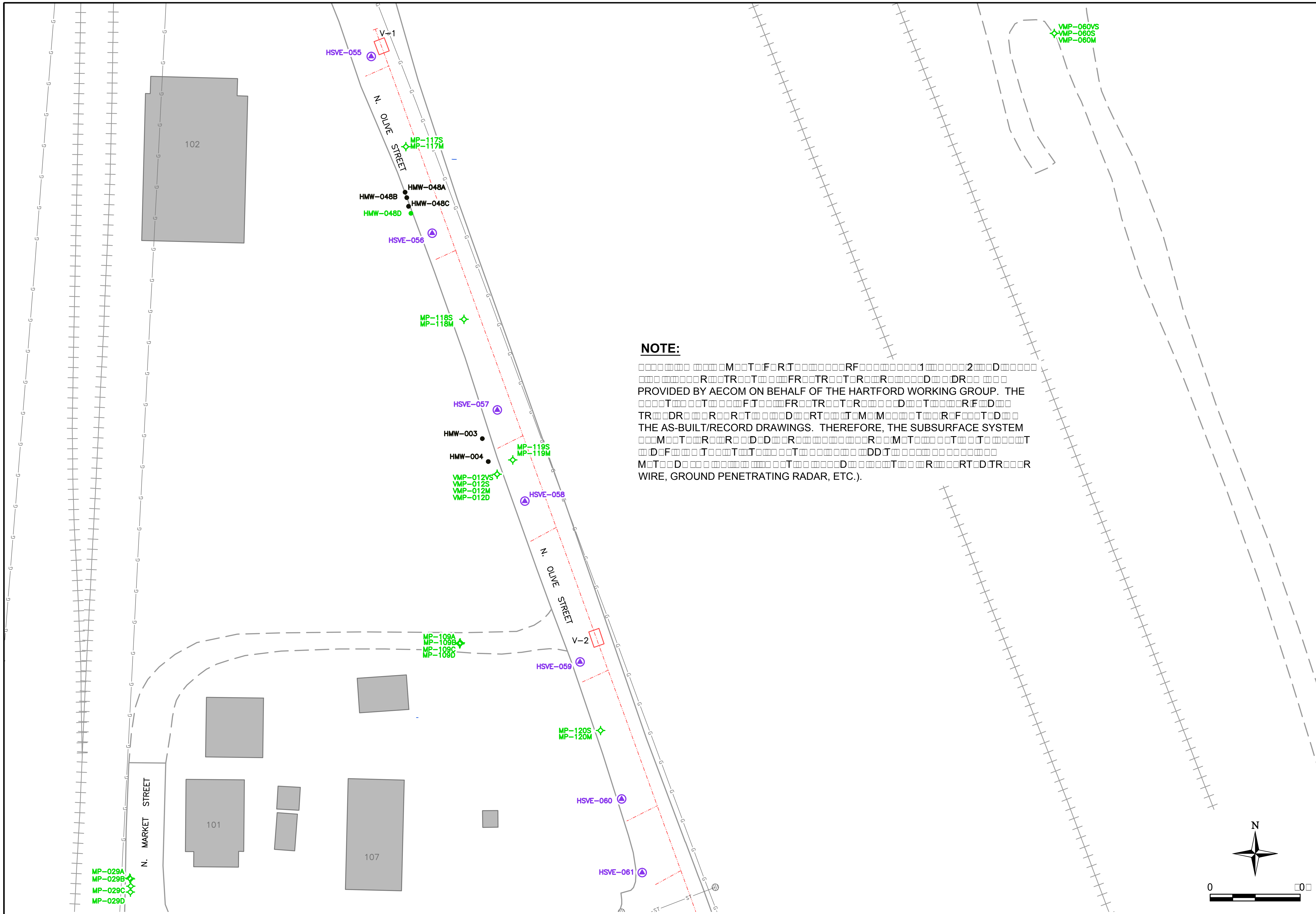
2



NOTE:

PROVIDED BY AECOM ON BEHALF OF THE HARTFORD WORKING GROUP. THE
THE AS-BUILT/RECORD DRAWINGS. THEREFORE, THE SUBSURFACE SYSTEM
WIRE, GROUND PENETRATING RADAR, ETC.).

DETAIL AREA B

RECORD DRAWING SET FOR UTILITY LOCATION
HARTFORD PETROLEUM RELEASE SITE
HARTFORD, ILLINOIS

Trihydro CORPORATION

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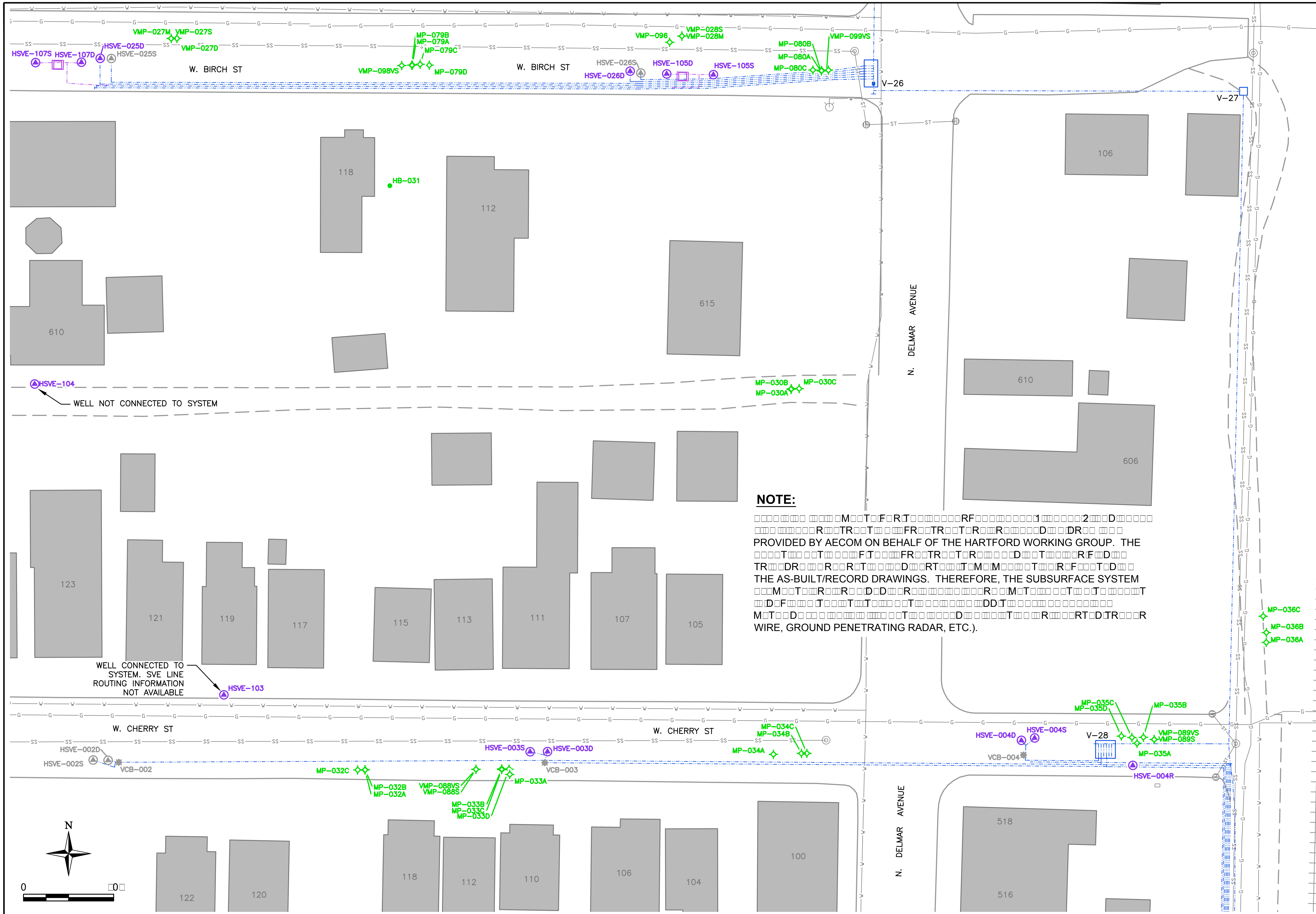
3

R 1



NOTE:

[illegible]
PROVIDED BY AECOM ON BEHALF OF THE HARTFORD WORKING GROUP. THE
[illegible]
THE AS-BUILT/RECORD DRAWINGS. THEREFORE, THE SUBSURFACE SYSTEM
[illegible]
WIRE, GROUND PENETRATING RADAR, ETC.).

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DETAIL AREA C

RECORD DRAWING SET FOR UTILITY LOCATION
HARTFORD PETROLEUM RELEASE SITE
HARTFORD, ILLINOIS

4

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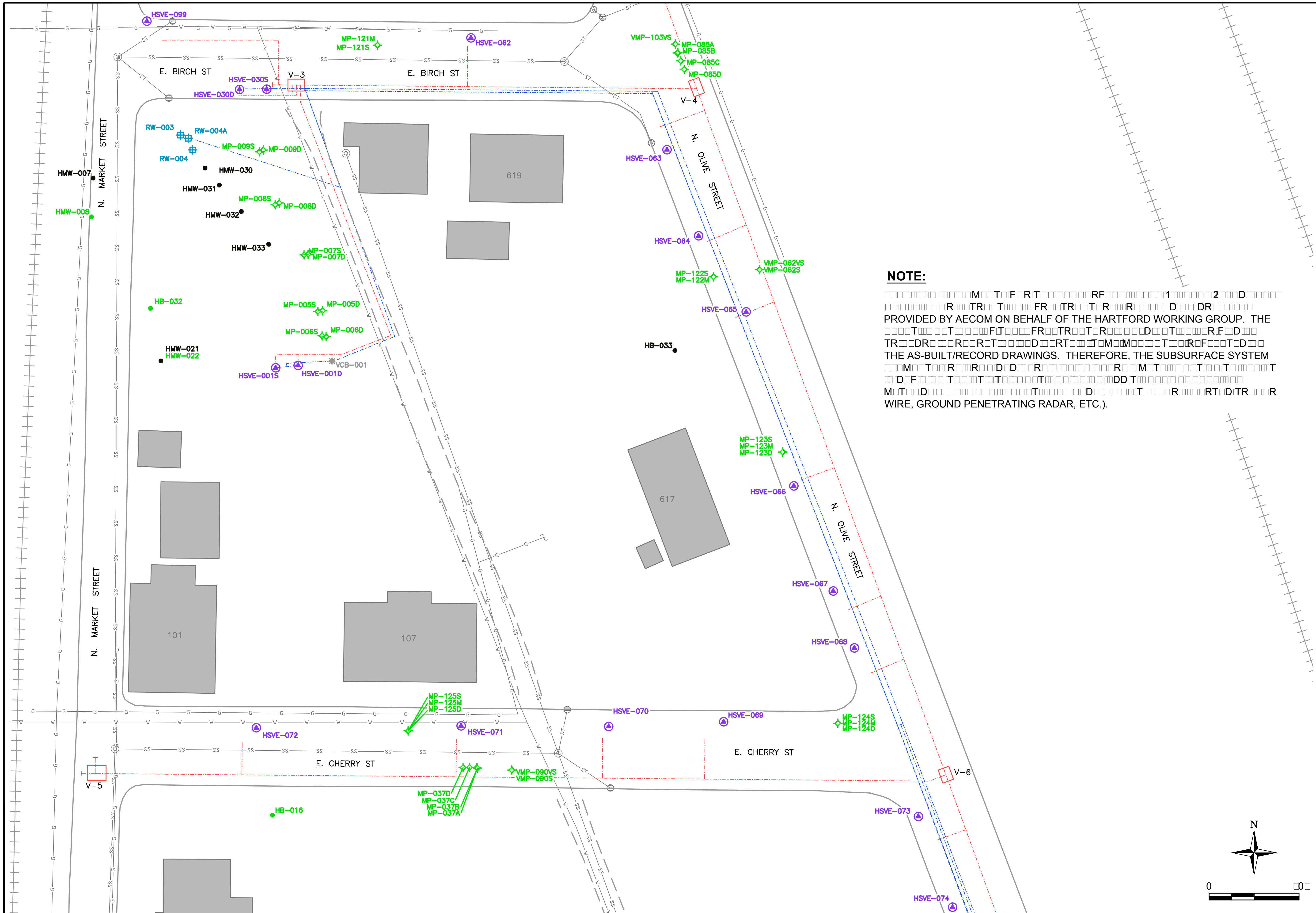

NOTE:

[illegible]
[illegible]
PROVIDED BY AECOM ON BEHALF OF THE HARTFORD WORKING GROUP. THE
[illegible]
[illegible]
THE AS-BUILT/RECORD DRAWINGS. THEREFORE, THE SUBSURFACE SYSTEM
[illegible]
[illegible]
[illegible]
WIRE, GROUND PENETRATING RADAR, ETC.).

DETAIL AREA D

RECORD DRAWING SET FOR UTILITY LOCATION
HARTFORD PETROLEUM RELEASE SITE
HARTFORD, ILLINOIS

5

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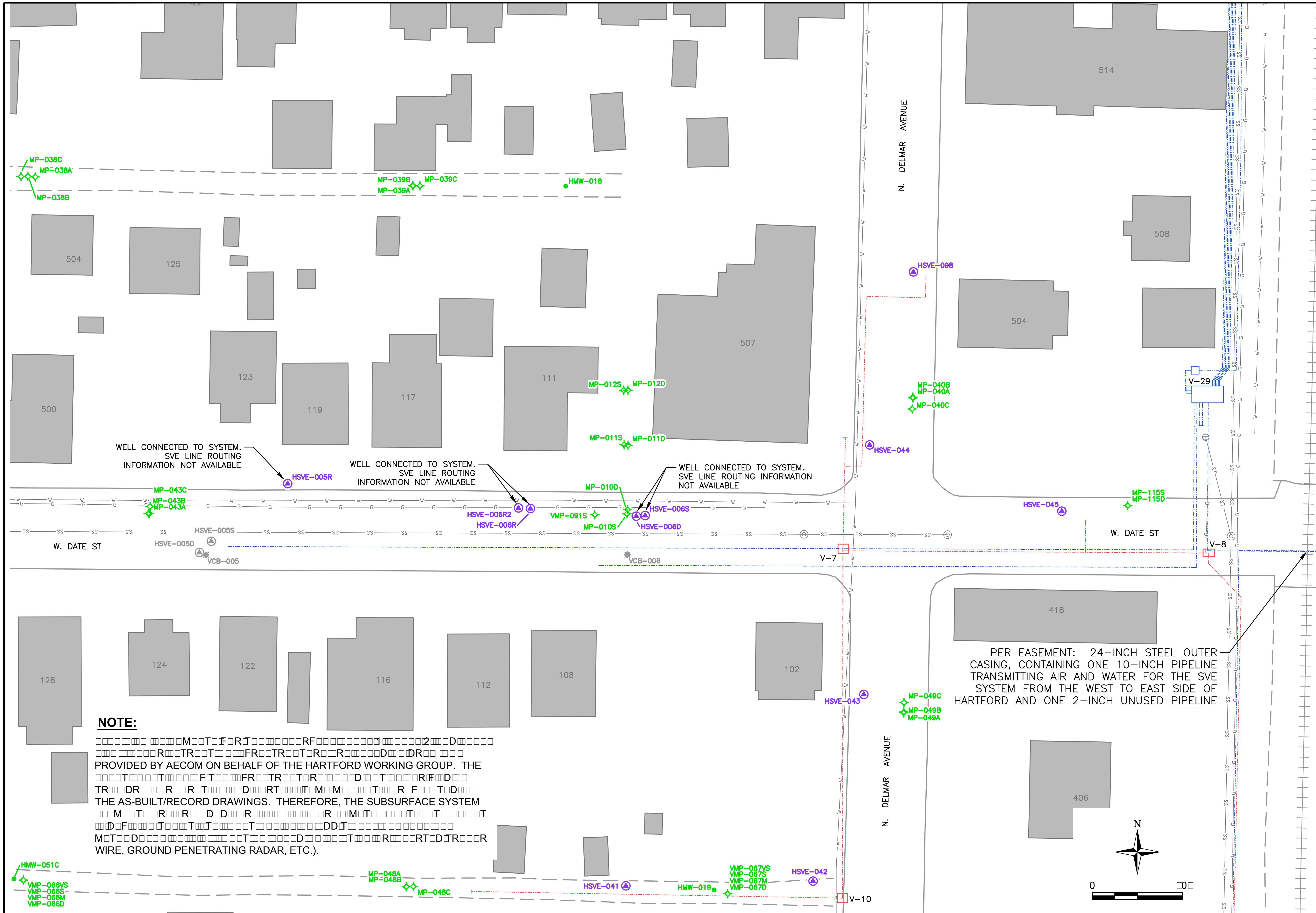

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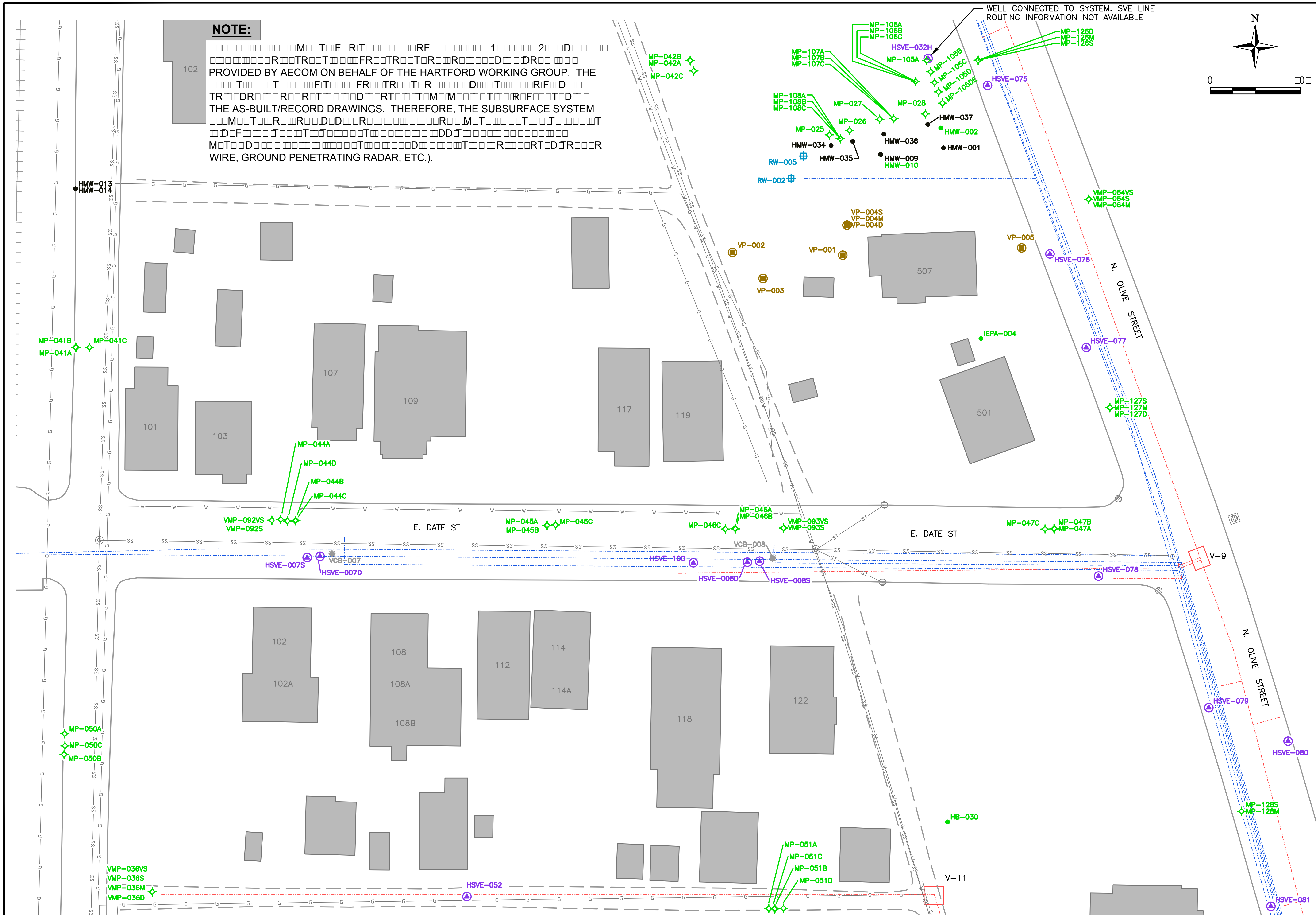
DETAIL AREA E

RECORD DRAWING SET FOR UTILITY LOCATION
HARTFORD PETROLEUM RELEASE SITE
HARTFORD, ILLINOIS

6



NOTE:

[illegible]
PROVIDED BY AECOM ON BEHALF OF THE HARTFORD WORKING GROUP. THE
[illegible]
THE AS-BUILT/RECORD DRAWINGS. THEREFORE, THE SUBSURFACE SYSTEM
[illegible]
WIRE, GROUND PENETRATING RADAR, ETC.).

DETAIL AREA F

RECORD DRAWING SET FOR UTILITY LOCATION
HARTFORD PETROLEUM RELEASE SITE
HARTFORD, ILLINOIS

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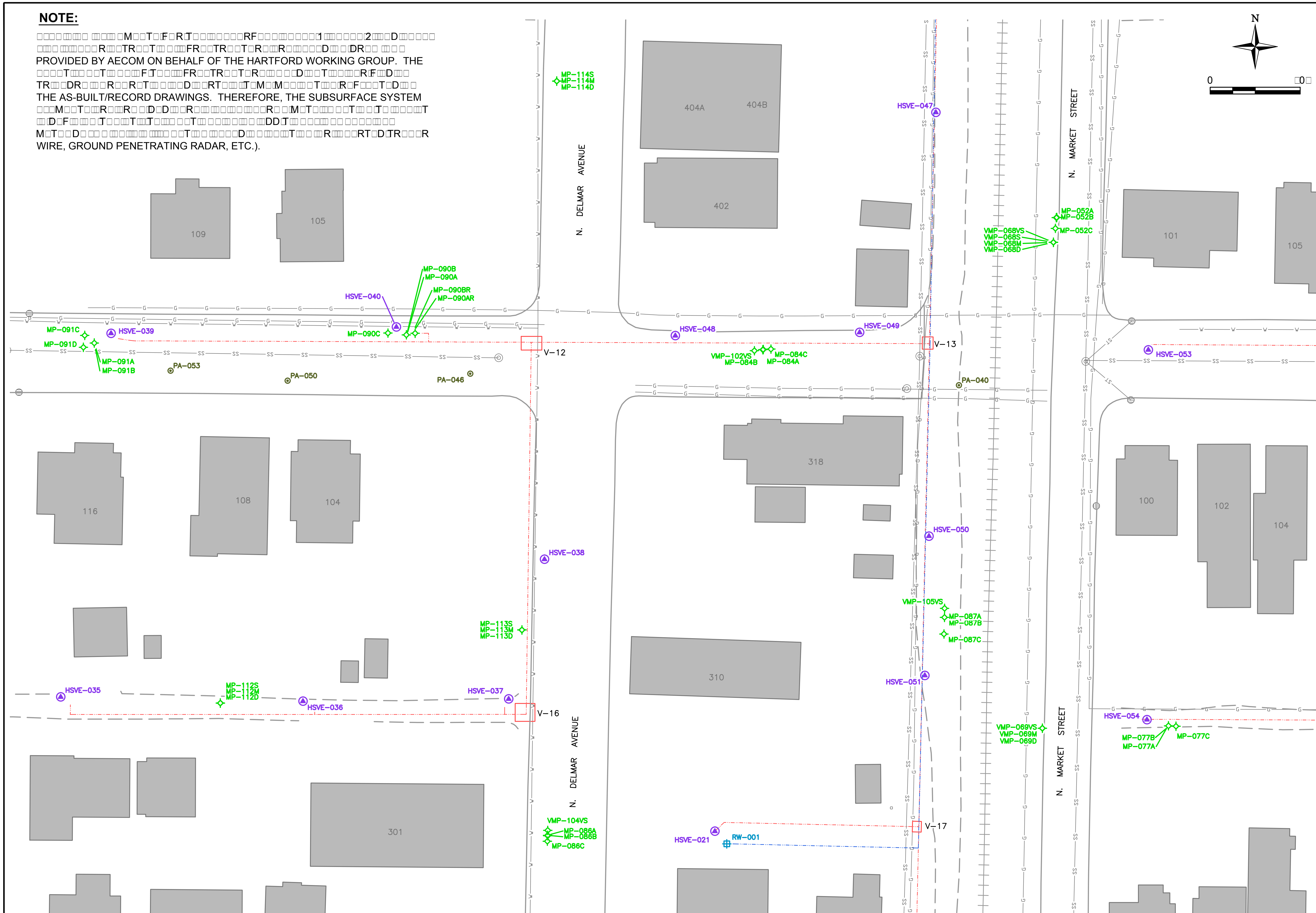
7

NOTE:

[illegible]
PROVIDED BY AECOM ON BEHALF OF THE HARTFORD WORKING GROUP. THE
[illegible]
THE AS-BUILT/RECORD DRAWINGS. THEREFORE, THE SUBSURFACE SYSTEM
[illegible]
WIRE, GROUND PENETRATING RADAR, ETC.).



DETAIL AREA G

RECORD DRAWING SET FOR UTILITY LOCATION
HARTFORD PETROLEUM RELEASE SITE
HARTFORD, ILLINOIS

Trihydro CORPORATION

(P) 307/745.7474 (F) 307/745.7729

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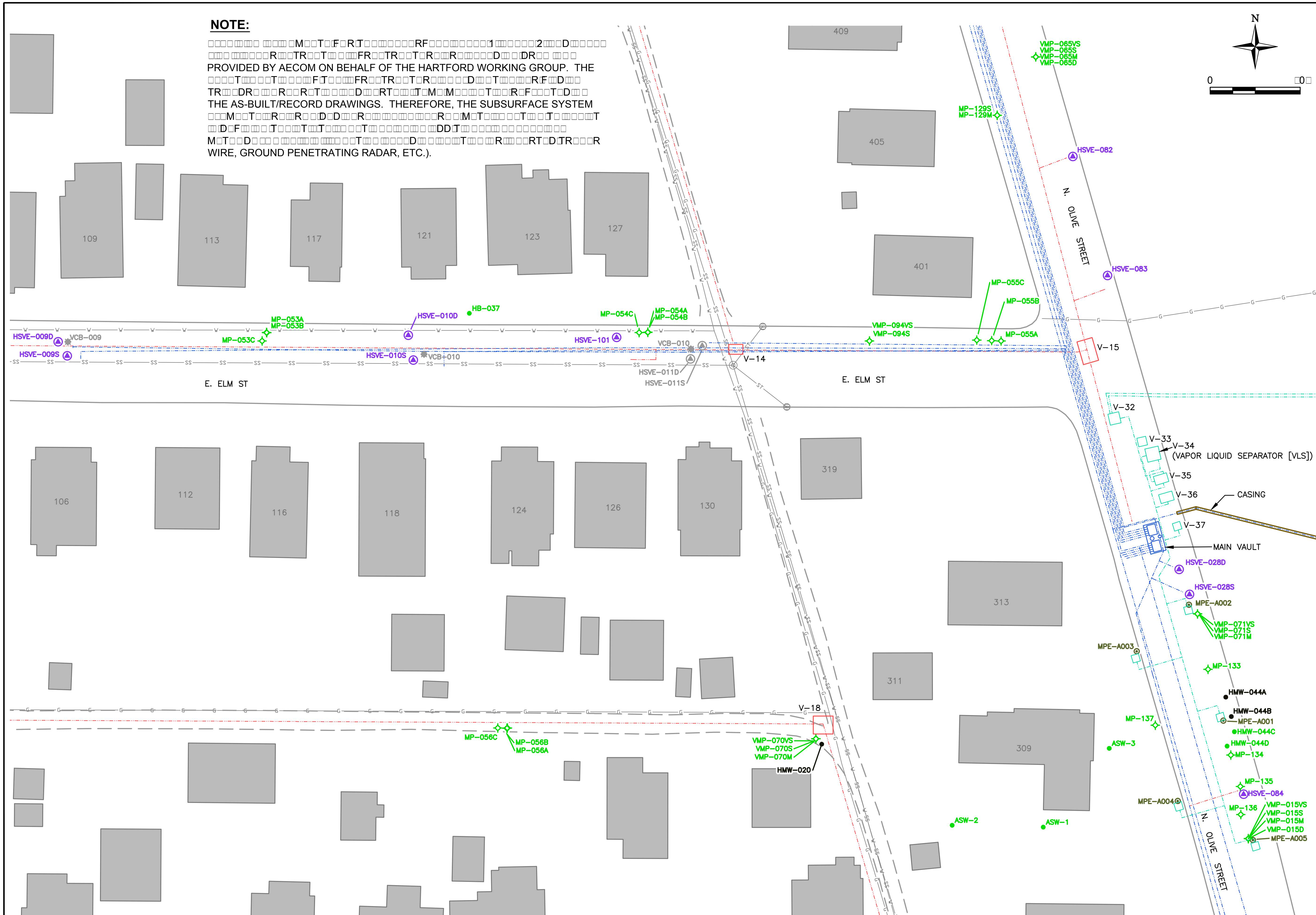
NOTE:

[illegible] PROVIDED BY AECOM ON BEHALF OF THE HARTFORD WORKING GROUP. THE [illegible] THE AS-BUILT/RECORD DRAWINGS. THEREFORE, THE SUBSURFACE SYSTEM [illegible] WIRE, GROUND PENETRATING RADAR, ETC.).



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DETAIL AREA H

RECORD DRAWING SET FOR UTILITY LOCATION
HARTFORD PETROLEUM RELEASE SITE
HARTFORD, ILLINOIS

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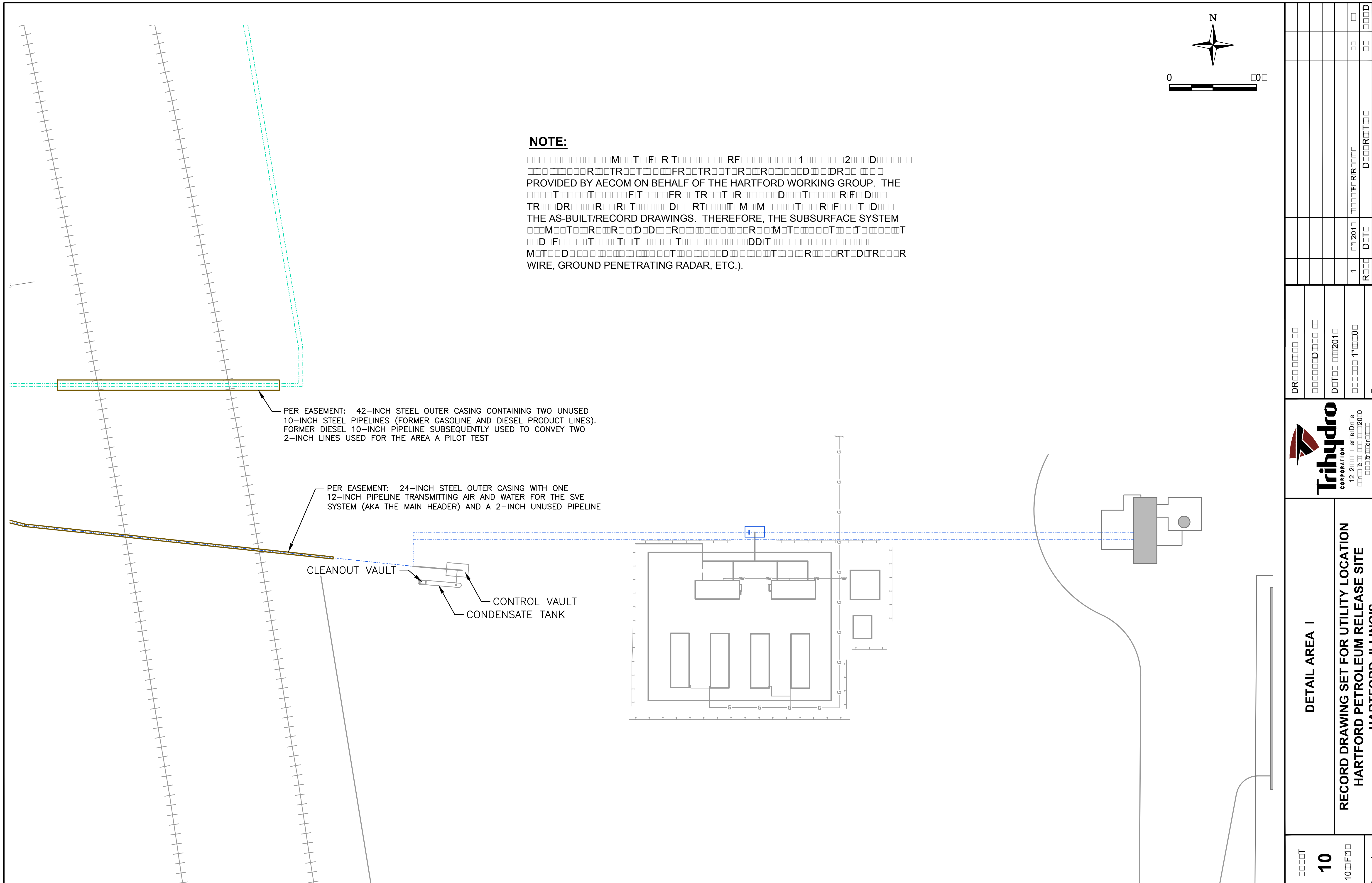

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NOTE:
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THE AS-BUILT/RECORD DRAWINGS. THEREFORE, THE SUBSURFACE SYSTEM
WIRE, GROUND PENETRATING RADAR, ETC.).
PER EASEMENT: 42-INCH STEEL OUTER CASING CONTAINING TWO UNUSED 10-INCH STEEL PIPELINES (FORMER GASOLINE AND DIESEL PRODUCT LINES). FORMER DIESEL 10-INCH PIPELINE SUBSEQUENTLY USED TO CONVEY TWO 2-INCH LINES USED FOR THE AREA A PILOT TEST
PER EASEMENT: 24-INCH STEEL OUTER CASING WITH ONE 12-INCH PIPELINE TRANSMITTING AIR AND WATER FOR THE SVE SYSTEM (AKA THE MAIN HEADER) AND A 2-INCH UNUSED PIPELINE
CLEANOUT VAULT
CONTROL VAULT
CONDENSATE TANK
Trihydro
CORPORATION
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DETAIL AREA I
RECORD DRAWING SET FOR UTILITY LOCATION
HARTFORD PETROLEUM RELEASE SITE
HARTFORD, ILLINOIS
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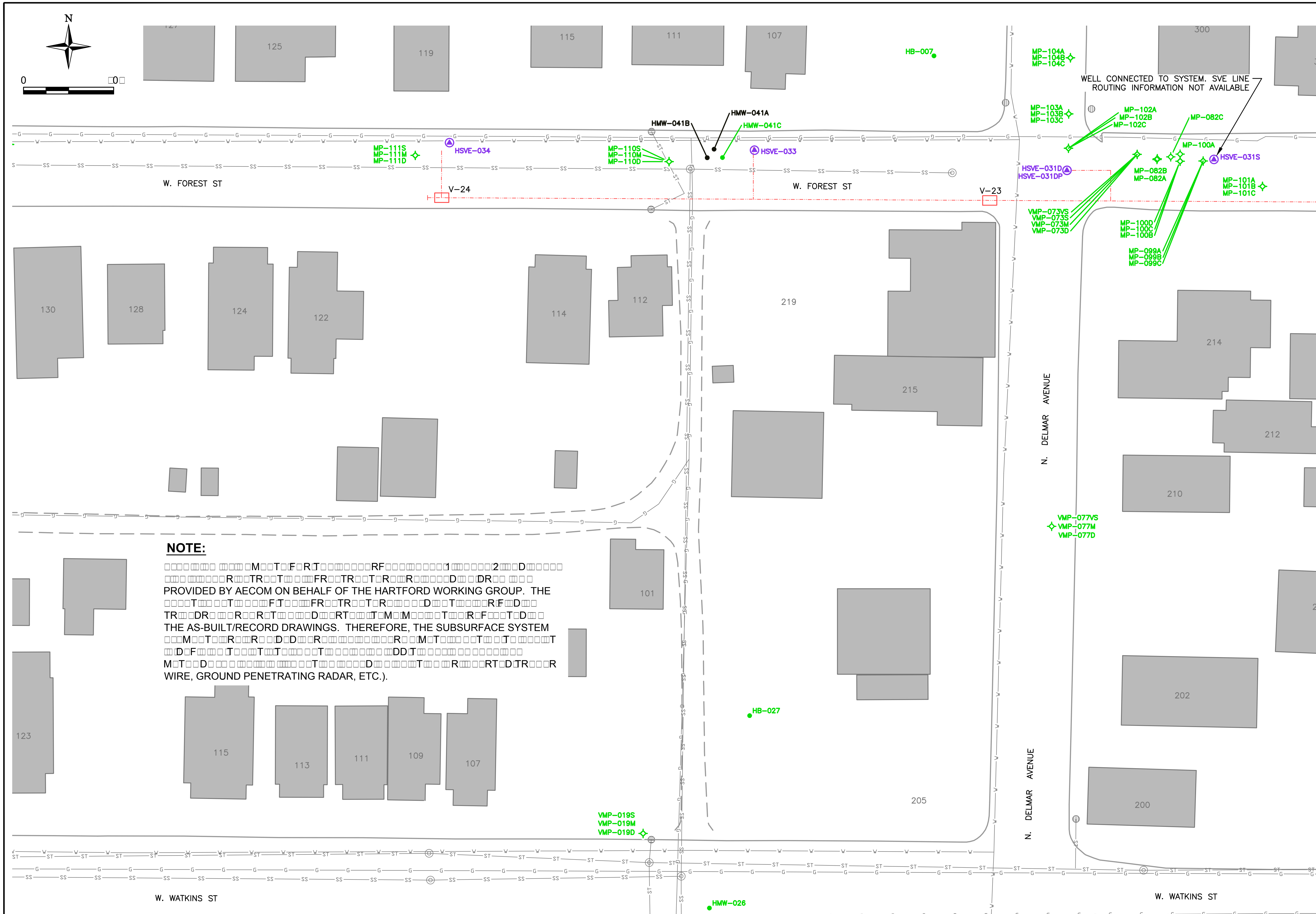

NOTE:

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DETAIL AREA J

RECORD DRAWING SET FOR UTILITY LOCATION
HARTFORD PETROLEUM RELEASE SITE
HARTFORD, ILLINOIS

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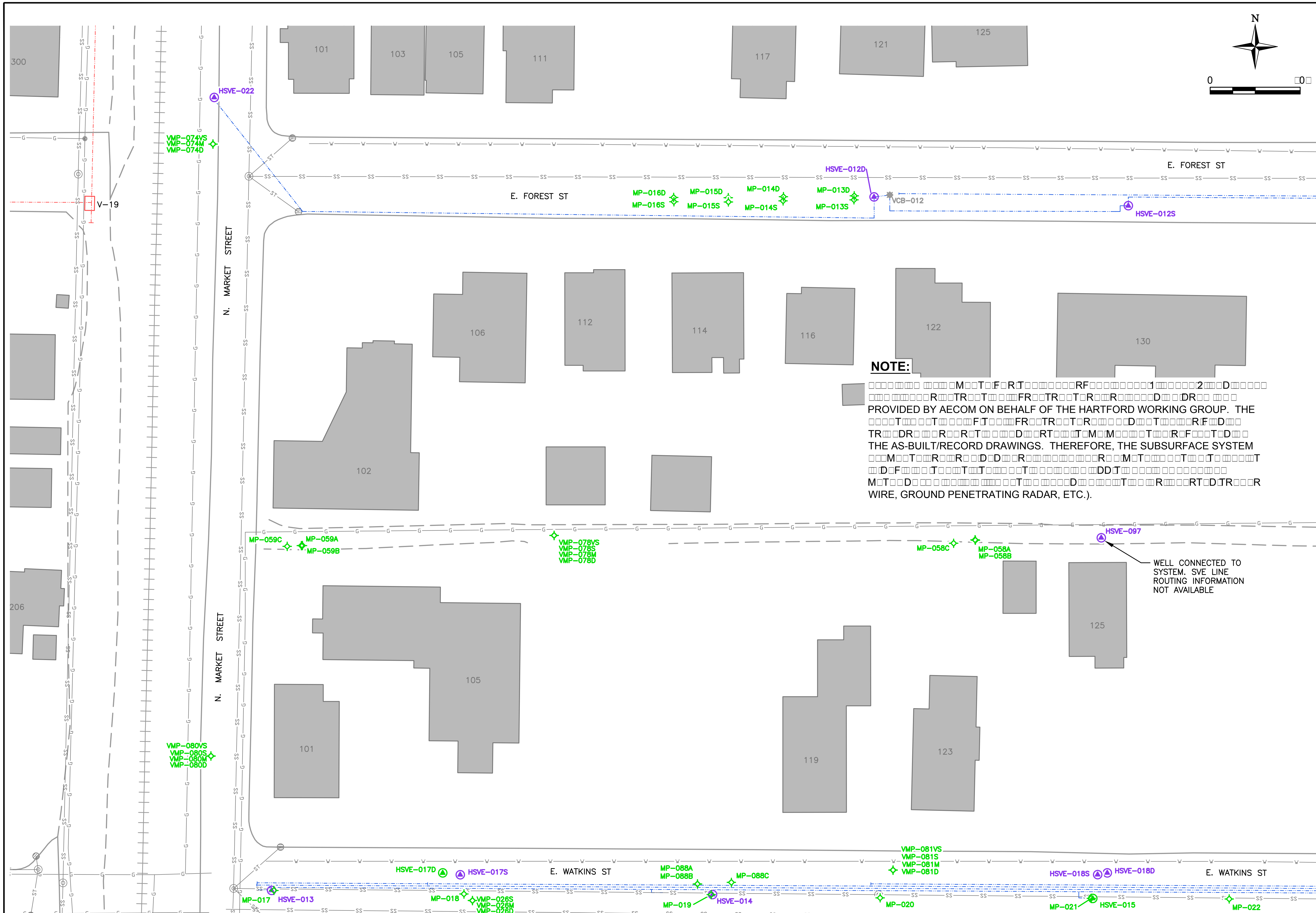

NOTE:

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THE AS-BUILT/RECORD DRAWINGS. THEREFORE, THE SUBSURFACE SYSTEM

WIRE, GROUND PENETRATING RADAR, ETC.).

DETAIL AREA K

RECORD DRAWING SET FOR UTILITY LOCATION
HARTFORD PETROLEUM RELEASE SITE
HARTFORD, ILLINOIS

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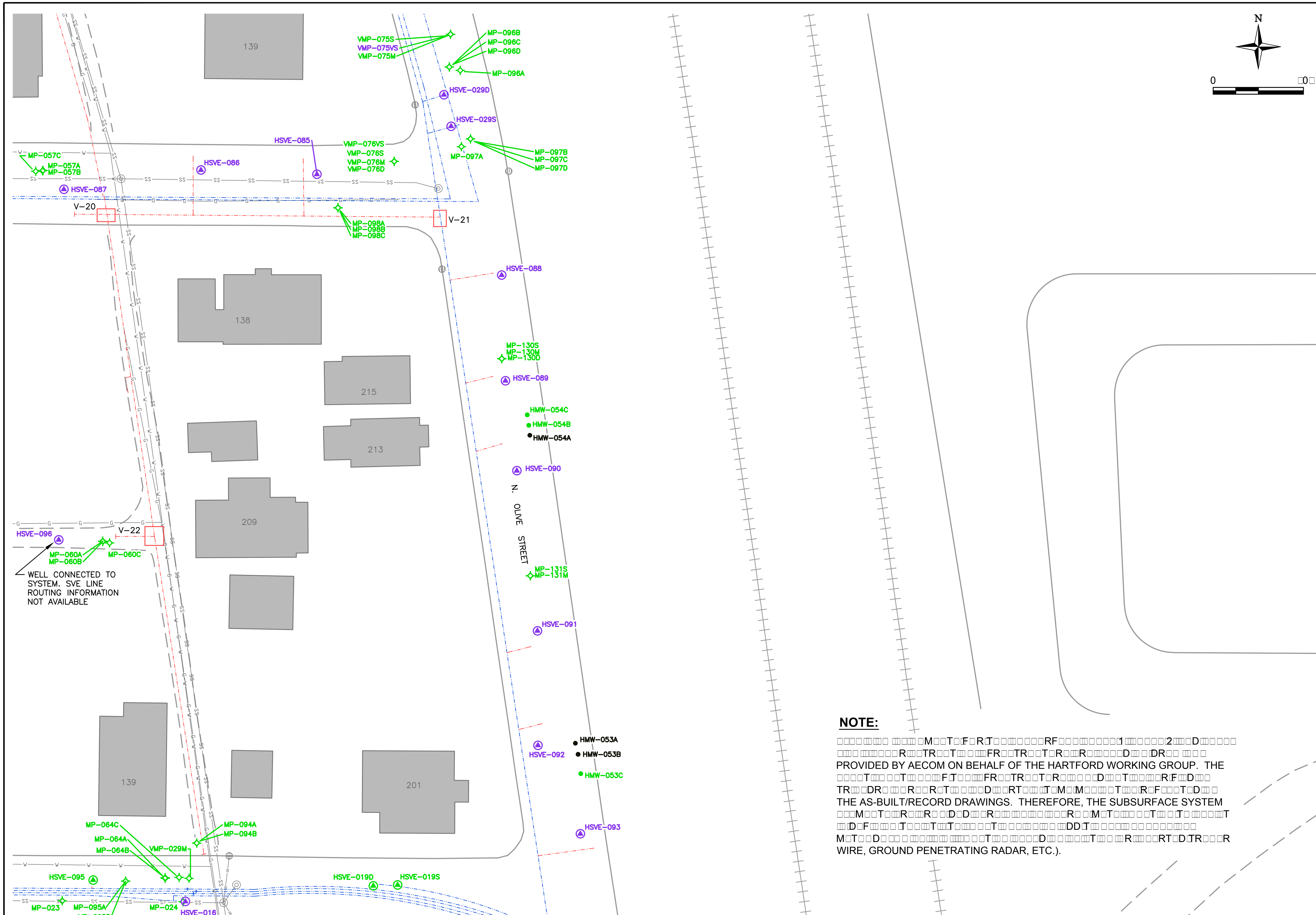

NOTE:

[illegible]
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[illegible]
THE AS-BUILT/RECORD DRAWINGS. THEREFORE, THE SUBSURFACE SYSTEM
[illegible]
WIRE, GROUND PENETRATING RADAR, ETC.).

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DETAIL AREA L

RECORD DRAWING SET FOR UTILITY LOCATION
HARTFORD PETROLEUM RELEASE SITE
HARTFORD, ILLINOIS

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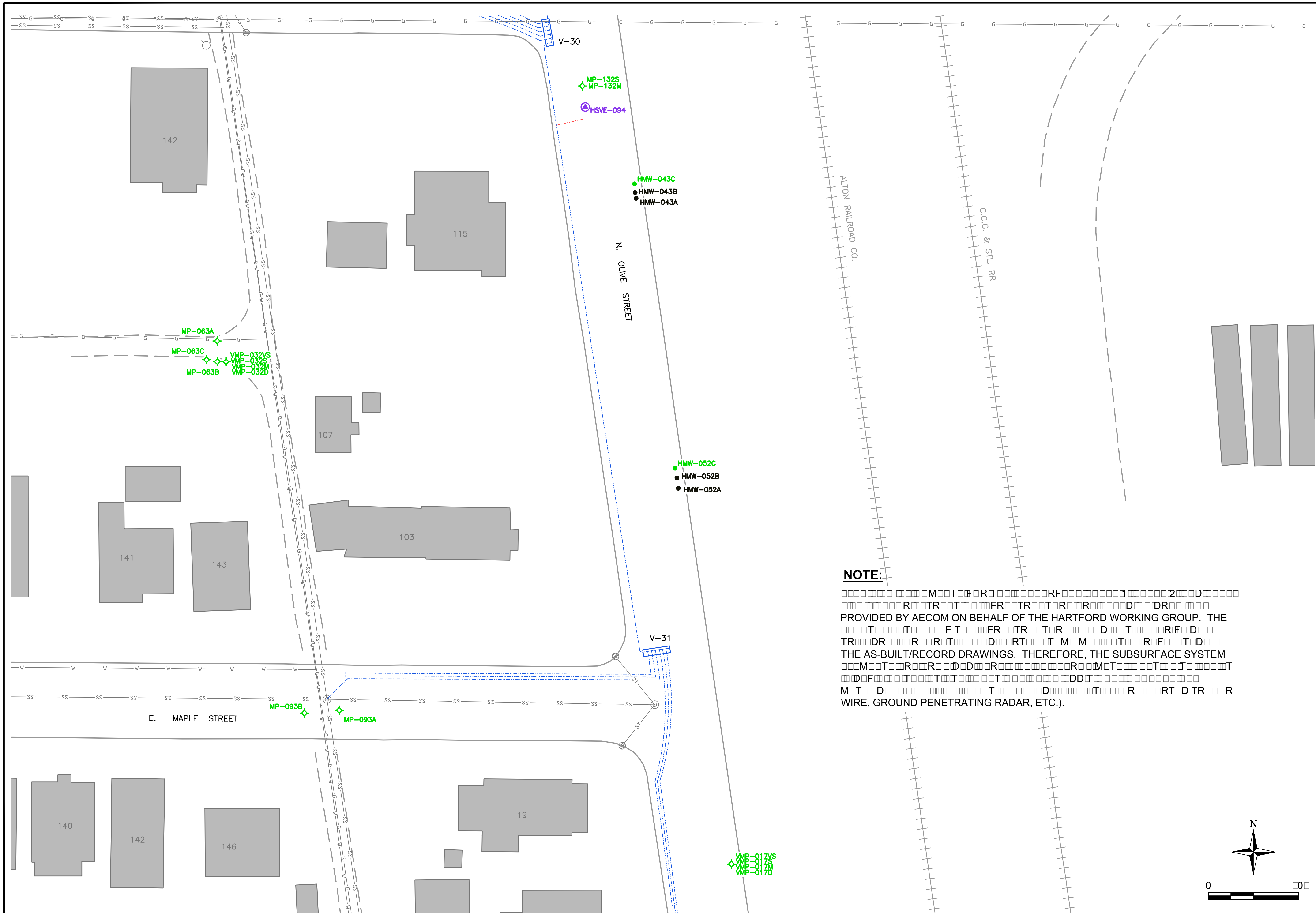

NOTE:

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WIRE, GROUND PENETRATING RADAR, ETC.).

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DETAIL AREA M

RECORD DRAWING SET FOR UTILITY LOCATION
HARTFORD PETROLEUM RELEASE SITE
HARTFORD, ILLINOIS

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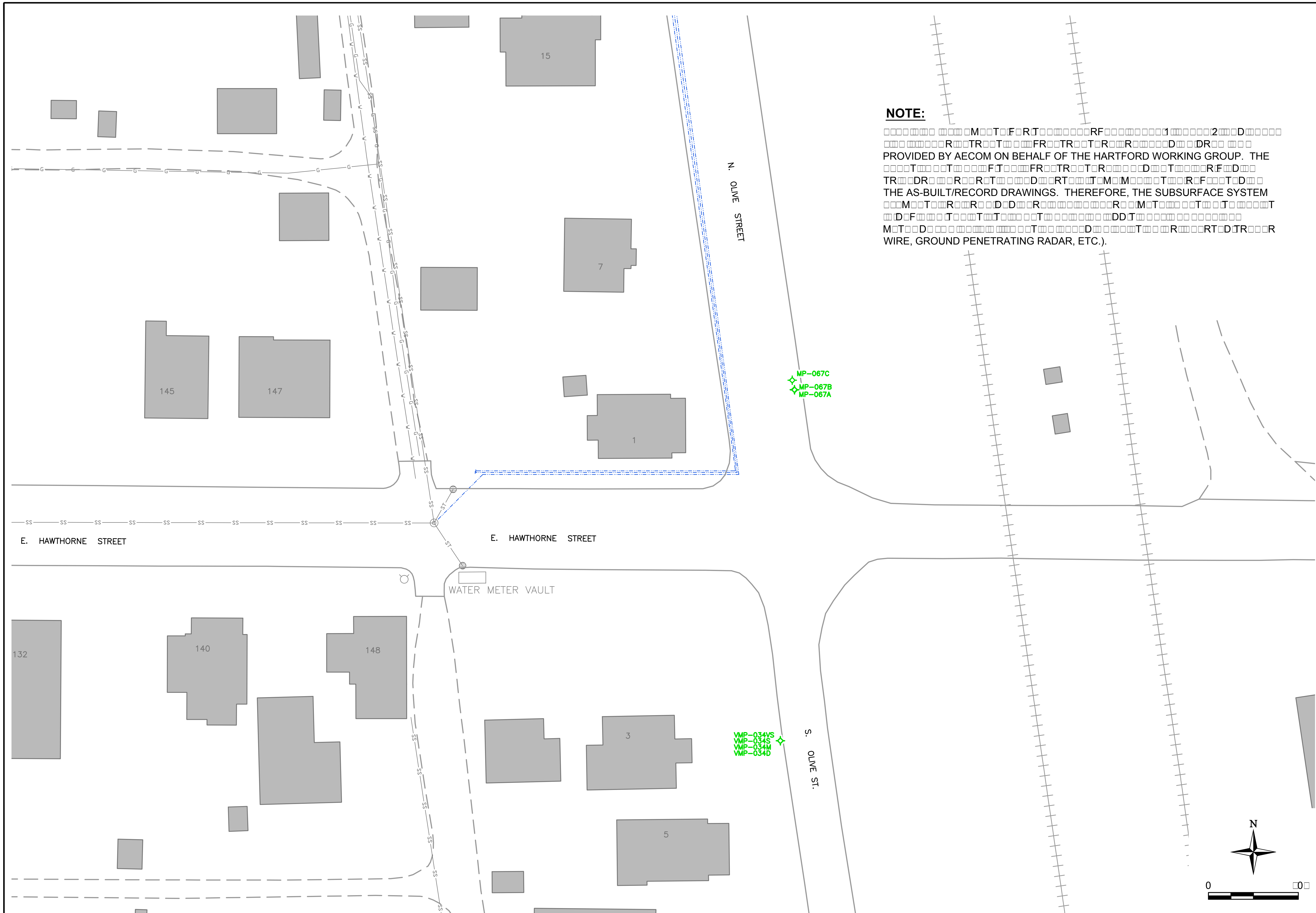

DETAIL AREA N

RECORD DRAWING SET FOR UTILITY LOCATION
HARTFORD PETROLEUM RELEASE SITE
HARTFORD, ILLINOIS

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APPENDIX B

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-003D	10/01/15	Zone 1	Multiple Strata	NA	NA	23.90	6.77	26.17														0		Flow Tube
HSVE-003D	10/05/15	Zone 1	Multiple Strata	ND	10.20	24.22	6.77	26.17	3.43													0		Flow Tube
HSVE-003D	10/12/15	Zone 1	Multiple Strata	ND	10.70	24.50	6.77	26.17	3.93		95.0	95.0	20.7	0.00	0.00	0.00	21.0					0		Flow Tube
HSVE-003D	10/26/15	Zone 1	Multiple Strata	ND	14.00	24.10	6.77	26.17	7.23													0		Flow Tube
HSVE-003D	11/09/15	Zone 1	Multiple Strata	ND	10.60	24.05	6.77	26.17	3.83													0		Flow Tube
HSVE-003D	11/16/15	Zone 1	Multiple Strata	ND	11.50	24.10	6.77	26.17	4.73		12.0	6.29	20.7	0.10	5.71	0.00	1.00	23.3	0.14	87.0	57.0	0		Flow Tube
HSVE-003D	11/30/15	Zone 1	Multiple Strata	NA	NA	24.10	6.77	26.17														50		Flow Tube
HSVE-003D	11/30/15	Zone 1	Multiple Strata	ND	10.40	23.80	6.77	26.17	3.63													50		Flow Tube
HSVE-003D	12/07/15	Zone 1	Multiple Strata	ND	10.05	24.20	6.77	26.17	3.28		430	350	20.8	0.20	80.0	0.00	78.0	13.7	0.05	100	52.0	50		Flow Tube
HSVE-003D	12/14/15	Zone 1	Multiple Strata	NA	NA	24.20	6.77	26.17														100		Flow Tube
HSVE-003D	12/21/15	Zone 1	Multiple Strata	ND	9.50	24.20	6.77	26.17	2.73													100		Flow Tube
HSVE-003D	01/04/16	Zone 1	Multiple Strata	ND	10.50	23.85	6.77	26.17	3.73													100		Flow Tube
HSVE-003D	01/11/16	Zone 1	Multiple Strata	ND	8.50	23.70	6.77	26.17	1.73		88.0	88.0	20.8	0.00	0.00	0.00	27.0	36.8	0.36	108	41.0	100		Flow Tube
HSVE-003D	01/25/16	Zone 1	Multiple Strata	ND	9.80	23.90	6.77	26.17	3.03													100		Flow Tube
HSVE-003D	02/08/16	Zone 1	Multiple Strata	ND	10.84	23.55	6.77	26.17	4.07													100		Flow Tube
HSVE-003D	02/22/16	Zone 1	Multiple Strata	ND	10.00	23.75	6.77	26.17	3.23		198	198	20.8	0.00	0.00	0.00	56.0	0.00	0.00	105	47.0	100		Flow Tube
HSVE-003D	03/09/16	Zone 1	Multiple Strata	ND	13.70	23.65	6.77	26.17	6.93													100		Flow Tube
HSVE-003D	03/21/16	Zone 1	Multiple Strata	ND	9.00	23.35	6.77	26.17	2.23		1,340	1,340	20.8	0.00	0.00	0.00	260	14.8	0.06	110	51.0	100		Flow Tube
HSVE-003S	10/01/15	Zone 1	N. Olive	NA	NA	15.35	6.56	16.06														50		None
HSVE-003S	10/05/15	Zone 1	N. Olive	ND	9.02	14.55	6.56	16.06	2.46													50		None
HSVE-003S	10/12/15	Zone 1	N. Olive	ND	Dry	14.88	6.56	16.06	9.50		785	209	20.6	0.20	576	0.00	27.0	83.4	0.12	101	71.0	100		None
HSVE-003S	10/26/15	Zone 1	N. Olive	ND	9.25	14.45	6.56	16.06	2.69													100		None
HSVE-003S	11/09/15	Zone 1	N. Olive	ND	9.10	13.70	6.56	16.06	2.54													100		None
HSVE-003S	11/16/15	Zone 1	N. Olive	ND	9.80	13.10	6.56	16.06	3.24		430	0.00	20.7	0.30	430	0.00	810					100		None
HSVE-003S	11/30/15	Zone 1	N. Olive	ND	8.67	13.46	6.56	16.06	2.11													100		None
HSVE-003S	12/07/15	Zone 1	N. Olive	ND	8.64	13.32	6.56	16.06	2.08		2,218	691	20.8	0.30	1,527	4.00	92.0	121	0.25	108	53.0	100		None
HSVE-003S	01/04/16	Zone 1	N. Olive	ND	8.42	14.94	6.56	16.06	1.86													100		None
HSVE-003S	01/11/16	Zone 1	N. Olive	ND	8.88	12.90	6.56	16.06	2.32		38.0	33.8	20.7	0.20	4.23	0.00	11.0	145	0.36	116	41.0	100		None
HSVE-003S	01/25/16	Zone 1	N. Olive	ND	8.82	12.83	6.56	16.06	2.26													100		None
HSVE-003S	02/08/16	Zone 1	N. Olive	ND	8.85	12.75	6.56	16.06	2.29													100		None
HSVE-003S	02/22/16	Zone 1	N. Olive	ND	9.82	12.75	6.56	16.06	3.26		450	116	20.8	0.00	334	0.00	26.0	167	0.46	103	46.0	100		None
HSVE-003S	03/09/16	Zone 1	N. Olive	ND	8.83	12.88	6.56	16.06	2.27													100		None
HSVE-003S	03/21/16	Zone 1	N. Olive	ND	8.93	12.88	6.56	16.06	2.37		635	216	20.8	0.10	419	0.00	41.0	133	0.31	115	56.0	100		None
HSVE-004D	10/05/15	Zone 1	Multiple Strata	ND	9.68	13.24	6.67	26.07	3.01													100		None
HSVE-004D	10/12/15	Zone 1	Multiple Strata	ND	12.45	26.10	6.67	26.07	5.78		250	219	20.8	0.00	30.6	0.00	45.0	52.5	0.05	117	69.0	100		None
HSVE-004D	10/26/15	Zone 1	Multiple Strata	ND	12.30	25.96	6.67	26.07	5.63													100		None
HSVE-004D	11/09/15	Zone 1	Multiple Strata	ND	11.40	26.10	6.67	26.07	4.73													100		None
HSVE-004D	11/16/15	Zone 1	Multiple Strata	ND	14.80	26.10	6.67	26.07	8.13		8.00	8.00	20.7	0.00	0.00	0.00	1.00	62.7	0.07	119	56.0	100		None
HSVE-004D	11/30/15	Zone 1	Multiple Strata	ND	9.90	26.10	6.67	26.07	3.23													100		None
HSVE-004D	12/07/15	Zone 1	Multiple Strata	ND	14.25	26.10	6.67	26.07	7.58		490	490	20.8	0.00	0.00	0.00	107	134	0.31	117	45.0	100		None
HSVE-004D	01/04/16	Zone 1	Multiple Strata	ND	14.02	26.10	6.67	26.07	7.35													100		None
HSVE-004D	01/11/16	Zone 1	Multiple Strata	ND	10.60	26.10	6.67	26.07	3.93		57.0	57.0	20.8	0.00	0.00	0.00	18.0	105	0.19	123	36.0	100		None
HSVE-004D	01/25/16	Zone 1	Multiple Strata	ND	9.95	26.08	6.67	26.07	3.28													100		None
HSVE-004D	02/08/16	Zone 1	Multiple Strata	ND	14.83	26.06	6.67	26.07	8.16													100		None
HSVE-004D	02/22/16	Zone 1	Multiple Strata	ND	14.00	25.50	6.67	26.07	7.33		115	115	20.8	0.00	0.00	0.00	35.0	0.00	0.00	114	44.0	100		None
HSVE-004D	03/09/16	Zone 1	Multiple Strata	ND	14.20	26.10	6.67	26.07	7.53													100		None
HSVE-004D	03/21/16	Zone 1	Multiple Strata	ND	10.00	23.90	6.67	26.07	3.33		885	881	20.8	0.00	4.29	0.00	186	53.0	0.05	119	55.0	100		None
HSVE-004R	10/05/15	Zone 1	Main Sand	ND	20.20	24.40	9.54	34.54	10.66													100		Viton Stinger
HSVE-004R	10/12/15	Zone 1	Main Sand	ND	23.08	24.30	9.54	34.54	13.54	17.00	30,200	17,422	18.9	1.40	12,778	20.0	411	6.87	0.22	120	66.0	100		Viton Stinger
HSVE-004R	10/20/15	Zone 1	Main Sand							22.00												100		Viton Stinger
HSVE-004R	10/26/15	Zone 1	Main Sand	ND	26.05	28.55	9.54	34.54	16.51													100		Viton Stinger
HSVE-004R	11/09/15	Zone 1	Main Sand	ND	29.18	31.92	9.54	34.54	19.64													100		Viton Stinger
HSVE-004R	11/16/15	Zone 1	Main Sand	ND	28.75	32.45	9.54	34.54	19.21	22.00	8,680	5,537	19.8	0.80	3,143	6.00	367	6.98	0.22	118	53.0	100		Viton Stinger
HSVE-004R	11/30/15	Zone 1	Main Sand	ND	26.83	33.40	9.54	34.54	17.29													100		Viton Stinger
HSVE-004R	12/07/15	Zone 1	Main Sand	ND	26.50	33.42	9.54	34.54	16.96	22.00	34,600	28,274	18.9	1.40	6,326	23.0	803	0.00	0.00	116	52.0	100		Viton Stinger
HSVE-004R	12/29/15	Zone 1	Main Sand	ND	18.88	21.65	9.54	34.54	9.34	22.00												100		Viton Stinger
HSVE-004R	12/29/15	Zone 1	Main Sand	NA	18.88	32.26	9.54	34.54	9.34	22.00												100		Viton Stinger
HSVE-004R	12/30/15	Zone 1	Main Sand							17.00												100		Viton Stinger

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-004R	01/04/16	Zone 1	Main Sand	ND	18.70	33.40	9.54	34.54	9.16													100		Viton Stinger
HSVE-004R	01/11/16	Zone 1	Main Sand	ND	18.95	31.95	9.54	34.54	9.41	17.00	710	651	20.7	0.30	59.2	0.00	158	0.00	0.00	123	43.0	100		Viton Stinger
HSVE-004R	01/25/16	Zone 1	Main Sand	ND	18.70	33.35	9.54	34.54	9.16													100		Viton Stinger
HSVE-004R	02/08/16	Zone 1	Main Sand	ND	19.93	33.10	9.54	34.54	10.39													100		Viton Stinger
HSVE-004R	02/22/16	Zone 1	Main Sand	ND	21.42	29.29	9.54	34.54	11.88	17.00	4,520	1,076	20.6	0.50	3,444	3.00	123	20.0	1.78	115	49.0	100		Viton Stinger
HSVE-004R	03/03/16	Zone 1	Main Sand							19.00												100		Viton Stinger
HSVE-004R	03/09/16	Zone 1	Main Sand	ND	26.17	31.53	9.54	34.54	16.63													100		Viton Stinger
HSVE-004R	03/21/16	Zone 1	Main Sand	ND	25.18	32.90	9.54	34.54	15.64	19.00	6,116	3,369	20.4	0.50	2,747	7.00	295	3.32	0.05	119	52.0	100		Viton Stinger
HSVE-004S	10/05/15	Zone 1	N. Olive	ND	9.68	13.24	6.56	16.06	3.12													33.3		None
HSVE-004S	10/12/15	Zone 1	N. Olive	ND	10.00	13.82	6.56	16.06	3.44		350	142	20.6	0.10	208	0.00	25.0	122	0.23	65.0	68.0	33.3		None
HSVE-004S	10/19/15	Zone 1	N. Olive	NA	NA	13.82	6.56	16.06														66.7		None
HSVE-004S	10/26/15	Zone 1	N. Olive	ND	10.80	13.80	6.56	16.06	4.24													66.7		None
HSVE-004S	11/03/15	Zone 1	N. Olive	NA	NA	13.80	6.56	16.06														100		None
HSVE-004S	11/09/15	Zone 1	N. Olive	ND	14.45	14.70	6.56	16.06	7.89													100		None
HSVE-004S	11/16/15	Zone 1	N. Olive	ND	Dry	14.60	6.56	16.06	9.50		387	223	20.7	0.10	164	0.00	26.0	78.6	0.11	118	58.0	100		None
HSVE-004S	11/30/15	Zone 1	N. Olive	ND	7.55	14.75	6.56	16.06	0.99													100		None
HSVE-004S	12/07/15	Zone 1	N. Olive	ND	14.50	14.85	6.56	16.06	7.94		203	196	20.6	0.00	7.14	0.00	47.0	177	0.54	116	45.0	100		None
HSVE-004S	01/04/16	Zone 1	N. Olive	ND	7.60	14.50	6.56	16.06	1.04													100		None
HSVE-004S	01/11/16	Zone 1	N. Olive	ND	7.92	14.50	6.56	16.06	1.36		15.0	15.0	20.8	0.00	0.00	0.00	6.00	915	14.5	123	35.0	100		None
HSVE-004S	01/19/16	Zone 1	N. Olive	ND	8.25	14.35	6.56	16.06	1.69													100		None
HSVE-004S	01/25/16	Zone 1	N. Olive	ND	7.17	14.50	6.56	16.06	0.61													100		None
HSVE-004S	02/08/16	Zone 1	N. Olive	ND	8.11	14.15	6.56	16.06	1.55													100		None
HSVE-004S	02/22/16	Zone 1	N. Olive	ND	Dry	14.15	6.56	16.06	9.50		92.0	92.0	20.8	0.00	0.00	0.00	17.0	199	0.68	117	43.0	100		None
HSVE-004S	03/09/16	Zone 1	N. Olive	ND	8.18	13.94	6.56	16.06	1.62													100		None
HSVE-004S	03/21/16	Zone 1	N. Olive	ND	10.20	14.50	6.56	16.06	3.64		102	102	20.8	0.00	0.00	0.00	28.0					0		None
HSVE-005R	10/01/15	Zone 2	Rand	NA	NA	19.67	11.20	19.07		14.00												50		Viton Stinger
HSVE-005R	10/05/15	Zone 2	Rand	ND	12.93	19.76	11.20	19.07	1.73													50		Viton Stinger
HSVE-005R	10/12/15	Zone 2	Rand	ND	12.92	19.78	11.20	19.07	1.72	14.00	765	376	19.9	0.80	389	0.00	65.0	6.91	0.10	123	73.0	50		Viton Stinger
HSVE-005R	10/20/15	Zone 2	Rand							12.10												50		Viton Stinger
HSVE-005R	10/26/15	Zone 2	Rand	ND	12.30	19.75	11.20	19.07	1.10													50		Viton Stinger
HSVE-005R	11/09/15	Zone 2	Rand	ND	13.45	19.67	11.20	19.07	2.25													50		Viton Stinger
HSVE-005R	11/11/15	Zone 2	Rand	NA	NA	19.67	11.20	19.07		12.10												66.7		Viton Stinger
HSVE-005R	11/16/15	Zone 2	Rand	ND	14.17	17.00	11.20	19.07	2.97	12.10	920	906	20.7	0.20	14.3	0.00	163	12.6	0.32	123	52.0	50		Viton Stinger
HSVE-005R	11/23/15	Zone 2	Rand	ND	13.05	19.75	11.20	19.07	1.85													50		Viton Stinger
HSVE-005R	11/30/15	Zone 2	Rand	ND	14.94	19.78	11.20	19.07	3.74													50		Viton Stinger
HSVE-005R	12/07/15	Zone 2	Rand	ND	15.02	19.67	11.20	19.07	3.82	12.10	1,880	1,061	19.4	0.70	819	2.00	136	11.1	0.23	105	50.0	50		Viton Stinger
HSVE-005R	12/14/15	Zone 2	Rand	NA	NA	19.67	11.20	19.07		12.10												100		Viton Stinger
HSVE-005R	12/21/15	Zone 2	Rand	ND	14.80	19.75	11.20	19.07	3.60													100		Viton Stinger
HSVE-005R	12/30/15	Zone 2	Rand	NA	14.36	19.60	11.20	19.07	3.16	12.10												100		Viton Stinger
HSVE-005R	12/31/15	Zone 2	Rand	NA	14.30	19.60	11.20	19.07	3.10	12.10												100		Viton Stinger
HSVE-005R	01/04/16	Zone 2	Rand	ND	13.50	19.79	11.20	19.07	2.30													100		Viton Stinger
HSVE-005R	01/11/16	Zone 2	Rand	ND	10.60	19.60	11.20	19.07	-0.60	12.10								4.99	0.05	133	33.0	100		Viton Stinger
HSVE-005R	01/15/16	Zone 2	Rand	NA	NA	19.60	11.20	19.07		12.10												16.7		Viton Stinger
HSVE-005R	01/19/16	Zone 2	Rand	ND	13.86	20.07	11.20	19.07	2.66													16.7		Viton Stinger
HSVE-005R	01/25/16	Zone 2	Rand	ND	13.76	19.76	11.20	19.07	2.56													16.7		Viton Stinger
HSVE-005R	02/08/16	Zone 2	Rand	ND	13.57	19.80	11.20	19.07	2.37													16.7		Viton Stinger
HSVE-005R	02/22/16	Zone 2	Rand	ND	14.10	19.78	11.20	19.07	2.90	12.10	490	136	20.0	0.60	354	0.00	33.0	13.3	0.31	87.0	47.0	50		Viton Stinger
HSVE-005R	03/02/16	Zone 2	Rand	NA	NA	19.78	11.20	19.07		12.10												83.3		Viton Stinger
HSVE-005R	03/09/16	Zone 2	Rand	ND	15.20	19.86	11.20	19.07	4.00													83.3		Viton Stinger
HSVE-005R	03/14/16	Zone 2	Rand	NA	NA	19.86	11.20	19.07		14.10												100		Viton Stinger
HSVE-005R	03/21/16	Zone 2	Rand	ND	14.40	19.77	11.20	19.07	3.20	14.10	1,500	510	19.9	0.80	990	0.00	87.0					100		Viton Stinger
HSVE-006R	10/02/15	Zone 2	Main Sand	NA	NA	31.74	27.12	31.12														16.7		None
HSVE-006R	10/05/15	Zone 2	Main Sand	ND	24.35	31.85	27.12	31.12	-2.77													16.7		None
HSVE-006R	10/12/15	Zone 2	Main Sand	ND	25.20	31.78	27.12	31.12	-1.92									0.00	0.00	80.0	66.0	16.7		None
HSVE-006R	10/26/15	Zone 2	Main Sand	30.38	30.52	31.94	27.12	31.12	3.26													16.7		None
HSVE-006R	11/09/15	Zone 2	Main Sand	29.52	31.00	32.23	27.12	31.12	2.40													16.7		None
HSVE-006R	11/16/15	Zone 2	Main Sand	30.28	31.18	31.98	27.12	31.12	3.16		843,000	815,200	4.60	8.90	27,800	OVR	700	11.2	0.19	28.0	53.0	16.7		None
HSVE-006R	11/30/15	Zone 2	Main Sand	24.10	31.00	32.00	27.12	31.12	-3.02													16.7		None

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-006R	12/03/15	Zone 2	Main Sand	NA	NA	32.00	27.12	31.12														0		None
HSVE-006R	12/07/15	Zone 2	Main Sand	ND	28.27	31.87	27.12	31.12	1.15		1,000,000	953,500	1.30	10.6	46,500	OVR	650					0		None
HSVE-006R	12/15/15	Zone 2	Main Sand	NA	NA	31.87	27.12	31.12														16.7		None
HSVE-006R	12/21/15	Zone 2	Main Sand	18.30	30.52	31.74	27.12	31.12	-8.82													16.7		None
HSVE-006R	12/28/15	Zone 2	Main Sand	NA	NA	31.74	27.12	31.12														0		None
HSVE-006R	01/04/16	Zone 2	Main Sand	16.86	25.45	31.84	27.12	31.12	-10.26													0		None
HSVE-006R	01/11/16	Zone 2	Main Sand	19.55	27.40	33.10	27.12	31.12	-7.57													0		None
HSVE-006R	01/25/16	Zone 2	Main Sand	ND	24.47	31.78	27.12	31.12	-2.65													0		None
HSVE-006R	02/08/16	Zone 2	Main Sand	26.42	27.46	31.80	27.12	31.12	-0.70													0		None
HSVE-006R	02/22/16	Zone 2	Main Sand	ND	26.10	31.82	27.12	31.12	-1.02													0		None
HSVE-006R	03/09/16	Zone 2	Main Sand	ND	Dry	31.80	27.12	31.12	4.00													0		None
HSVE-006R	03/21/16	Zone 2	Main Sand	28.80	30.20	31.70	27.12	31.12	1.68		367,000	302,500	1.80	9.80	64,500	OVR	507					0		None
HSVE-006R	03/28/16	Zone 2	Main Sand	NA	NA	31.70	27.12	31.12														16.7		None
HSVE-007D	10/06/15	Zone 5	Multiple Strata	ND	18.40	24.72	6.74	26.14	11.66													100		Flow Tube
HSVE-007D	10/14/15	Zone 5	Multiple Strata	ND	19.73	24.65	6.74	26.14	12.99		15.0	12.1	20.8	0.00	2.86	0.00	4.00	15.1	0.05	24.0	68.0	100		Flow Tube
HSVE-007D	10/19/15	Zone 5	Multiple Strata	NA	NA	24.65	6.74	26.14														0		Flow Tube
HSVE-007D	10/27/15	Zone 5	Multiple Strata	ND	22.66	24.75	6.74	26.14	15.92													0		Flow Tube
HSVE-007D	11/10/15	Zone 5	Multiple Strata	ND	15.15	24.68	6.74	26.14	8.41													0		Flow Tube
HSVE-007D	11/18/15	Zone 5	Multiple Strata	ND	8.44	24.75	6.74	26.14	1.70		360	357	20.8	0.00	2.82	0.00	92.0					0		Flow Tube
HSVE-007D	12/01/15	Zone 5	Multiple Strata	ND	10.00	24.26	6.74	26.14	3.26													0		Flow Tube
HSVE-007D	12/08/15	Zone 5	Multiple Strata	ND	11.55	23.72	6.74	26.14	4.81		540	371	20.6	0.20	169	0.00	41.0					0		Flow Tube
HSVE-007D	12/15/15	Zone 5	Multiple Strata	NA	NA	23.72	6.74	26.14														16.7		Flow Tube
HSVE-007D	12/22/15	Zone 5	Multiple Strata	ND	10.84	22.80	6.74	26.14	4.10													16.7		Flow Tube
HSVE-007D	01/05/16	Zone 5	Multiple Strata	ND	10.88	22.30	6.74	26.14	4.14													16.7		Flow Tube
HSVE-007D	01/12/16	Zone 5	Multiple Strata	ND	10.95	21.98	6.74	26.14	4.21		450	436	20.8	0.00	14.5	0.00	83.0					0		Flow Tube
HSVE-007D	01/15/16	Zone 5	Multiple Strata	NA	NA	21.98	6.74	26.14														16.7		Flow Tube
HSVE-007D	01/19/16	Zone 5	Multiple Strata	ND	11.30	21.40	6.74	26.14	4.56													16.7		Flow Tube
HSVE-007D	01/22/16	Zone 5	Multiple Strata	NA	NA	21.40	6.74	26.14														33.3		Flow Tube
HSVE-007D	01/26/16	Zone 5	Multiple Strata	ND	12.63	22.30	6.74	26.14	5.89													33.3		Flow Tube
HSVE-007D	02/09/16	Zone 5	Multiple Strata	ND	13.18	22.30	6.74	26.14	6.44													33.3		Flow Tube
HSVE-007D	02/12/16	Zone 5	Multiple Strata	NA	NA	22.30	6.74	26.14														50		Flow Tube
HSVE-007D	02/23/16	Zone 5	Multiple Strata	ND	12.52	20.22	6.74	26.14	5.78		1,074	795	20.6	0.20	279	0.00	104	49.6	0.55	43.0	52.0	33.3		Flow Tube
HSVE-007D	03/01/16	Zone 5	Multiple Strata	NA	NA	20.22	6.74	26.14														66.7		Flow Tube
HSVE-007D	03/07/16	Zone 5	Multiple Strata	ND	13.80	20.00	6.74	26.14	7.06													66.7		Flow Tube
HSVE-007D	03/14/16	Zone 5	Multiple Strata	NA	NA	20.00	6.74	26.14														100		Flow Tube
HSVE-007D	03/22/16	Zone 5	Multiple Strata	ND	11.75	19.68	6.74	26.14	5.01		2,970	2,136	20.5	0.40	834	4.00	173	15.0	0.05	40.0	53.0	100		Flow Tube
HSVE-007S	10/06/15	Zone 5	N. Olive	ND	Dry	9.50	4.76	9.26	4.50													100		Flow Tube
HSVE-007S	10/14/15	Zone 5	N. Olive	ND	Dry	8.52	4.76	9.26	4.50		262	191	20.5	0.20	71.4	0.00	27.0	88.0	1.67	19.0	66.0	100		Flow Tube
HSVE-007S	10/27/15	Zone 5	N. Olive	ND	Dry	8.54	4.76	9.26	4.50													100		Flow Tube
HSVE-007S	11/10/15	Zone 5	N. Olive	ND	Dry	8.50	4.76	9.26	4.50													100		Flow Tube
HSVE-007S	11/18/15	Zone 5	N. Olive	ND	7.08	8.52	4.76	9.26	2.32		2,925	2,129	20.4	0.50	796	0.00	244	95.7	2.08	44.0	58.0	100		Flow Tube
HSVE-007S	12/01/15	Zone 5	N. Olive	ND	7.70	8.60	4.76	9.26	2.94													100		Flow Tube
HSVE-007S	12/08/15	Zone 5	N. Olive	ND	Dry	8.50	4.76	9.26	4.50		1,265	938	20.2	0.40	327	0.00	94.0	87.3	1.65	32.0	51.0	100		Flow Tube
HSVE-007S	01/05/16	Zone 5	N. Olive	ND	8.05	8.35	4.76	9.26	3.29													100		Flow Tube
HSVE-007S	01/12/16	Zone 5	N. Olive	ND	Dry	8.70	4.76	9.26	4.50		317	313	20.8	0.00	4.35	0.00	62.0	83.6	1.52	45.0	35.0	100		Flow Tube
HSVE-007S	01/26/16	Zone 5	N. Olive	ND	Dry	8.35	4.76	9.26	4.50													100		Flow Tube
HSVE-007S	02/09/16	Zone 5	N. Olive	ND	Dry	8.32	4.76	9.26	4.50													100		Flow Tube
HSVE-007S	02/23/16	Zone 5	N. Olive	ND	8.04	9.75	4.76	9.26	3.28		552	373	20.8	0.00	179	0.00	59.0	37.1	0.30	38.0	47.0	100		Flow Tube
HSVE-007S	03/07/16	Zone 5	N. Olive	ND	Dry	8.75	4.76	9.26	4.50													100		Flow Tube
HSVE-007S	03/22/16	Zone 5	N. Olive	ND	8.09	8.77	4.76	9.26	3.33		411	283	20.7	0.10	128	0.00	32.0	91.8	1.84	35.0	51.0	100		Flow Tube
HSVE-009D	10/01/15	Zone 5	Rand	NA	NA	26.20	6.73	26.13														0		None
HSVE-009D	10/06/15	Zone 5	Rand	ND	22.44	26.27	6.73	26.13	15.71													0		None
HSVE-009D	10/14/15	Zone 5	Rand	ND	22.46	26.24	6.73	26.13	15.73		36.0	23.1	20.6	0.20	12.9	0.00	5.00					0		None
HSVE-009D	10/27/15	Zone 5	Rand	ND	22.70	26.28	6.73	26.13	15.97													0		None
HSVE-009D	11/10/15	Zone 5	Rand	ND	23.84	26.27	6.73	26.13	17.11													0		None
HSVE-009D	11/18/15	Zone 5	Rand	ND	24.06	26.05	6.73	26.13	17.33		200	200	20.8	0.00	0.00	0.00	57.0					0		None
HSVE-009D	12/01/15	Zone 5	Rand	ND	22.68	26.28	6.73	26.13	15.95													0		None
HSVE-009D	12/09/15	Zone 5	Rand	ND	22.25	26.35	6.73	26.13	15.52		50.0	50.0	20.8	0.00	0.00	0.00	13.0					0		None

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-009D	01/05/16	Zone 5	Rand	ND	15.80	26.16	6.73	26.13	9.07													0		None
HSVE-009D	01/26/16	Zone 5	Rand	ND	19.79	26.15	6.73	26.13	13.06													0		None
HSVE-009D	02/09/16	Zone 5	Rand	ND	21.00	26.16	6.73	26.13	14.27													0		None
HSVE-009S	10/06/15	Zone 5	A Clay	ND	10.75	10.90	5.74	10.24	4.50													0		Flow Tube
HSVE-009S	10/14/15	Zone 5	A Clay	ND	10.65	10.87	5.74	10.24	4.50		29.0	29.0	19.9	0.60	0.00	0.00	11.0					0		Flow Tube
HSVE-009S	10/27/15	Zone 5	A Clay	ND	10.66	10.89	5.74	10.24	4.50													0		Flow Tube
HSVE-009S	11/10/15	Zone 5	A Clay	ND	10.64	10.88	5.74	10.24	4.50													0		Flow Tube
HSVE-009S	11/18/15	Zone 5	A Clay	ND	10.65	10.90	5.74	10.24	4.50		118	118	19.6	0.70	0.00	0.00	36.0					0		Flow Tube
HSVE-009S	12/01/15	Zone 5	A Clay	ND	10.60	10.90	5.74	10.24	4.50													0		Flow Tube
HSVE-009S	12/09/15	Zone 5	A Clay	ND	Dry	10.90	5.74	10.24	4.50		104	73.0	20.2	0.40	31.0	0.00	18.0					0		Flow Tube
HSVE-009S	01/05/16	Zone 5	A Clay	ND	10.55	10.85	5.74	10.24	4.50													0		Flow Tube
HSVE-009S	01/26/16	Zone 5	A Clay	ND	Dry	10.85	5.74	10.24	4.50													0		Flow Tube
HSVE-009S	02/09/16	Zone 5	A Clay	ND	Dry	10.85	5.74	10.24	4.50													0		Flow Tube
HSVE-010D	10/01/15	Zone 5	Multiple Strata	NA	NA	22.40	6.70	26.10														0		Flow Tube
HSVE-010D	10/06/15	Zone 5	Multiple Strata	ND	22.28	22.32	6.70	26.10	15.58													0		Flow Tube
HSVE-010D	10/14/15	Zone 5	Multiple Strata	ND	Dry	22.26	6.70	26.10	19.40		300	176	19.6	0.40	124	0.00	26.0					0		Flow Tube
HSVE-010D	10/19/15	Zone 5	Multiple Strata	NA	NA	22.26	6.70	26.10														100		Flow Tube
HSVE-010D	10/27/15	Zone 5	Multiple Strata	ND	Dry	22.32	6.70	26.10	19.40													100		Flow Tube
HSVE-010D	11/10/15	Zone 5	Multiple Strata	ND	22.08	22.30	6.70	26.10	15.38													100		Flow Tube
HSVE-010D	11/18/15	Zone 5	Multiple Strata	ND	Dry	22.37	6.70	26.10	19.40		27,300	18,666	18.5	1.80	8,634	21.0	578	0.00	0.00	0.00	59.0	100		Flow Tube
HSVE-010D	12/01/15	Zone 5	Multiple Strata	ND	22.30	22.35	6.70	26.10	15.60													100		Flow Tube
HSVE-010D	12/09/15	Zone 5	Multiple Strata	ND	22.20	22.32	6.70	26.10	15.50		4,400	2,428	20.1	0.60	1,972	6.00	228	0.00	0.00	0.00	49.0	100		Flow Tube
HSVE-010D	01/05/16	Zone 5	Multiple Strata	ND	21.21	25.51	6.70	26.10	14.51													100		Flow Tube
HSVE-010D	01/13/16	Zone 5	Multiple Strata	ND	21.18	22.30	6.70	26.10	14.48		5,670	3,666	19.8	0.90	2,004	6.00	310					0		Flow Tube
HSVE-010D	01/15/16	Zone 5	Multiple Strata	NA	NA	22.30	6.70	26.10														16.7		Flow Tube
HSVE-010D	01/19/16	Zone 5	Multiple Strata	ND	21.28	22.39	6.70	26.10	14.58													16.7		Flow Tube
HSVE-010D	01/22/16	Zone 5	Multiple Strata	NA	NA	22.39	6.70	26.10														33.3		Flow Tube
HSVE-010D	01/26/16	Zone 5	Multiple Strata	ND	21.48	25.51	6.70	26.10	14.78													33.3		Flow Tube
HSVE-010D	02/09/16	Zone 5	Multiple Strata	ND	22.00	25.50	6.70	26.10	15.30													33.3		Flow Tube
HSVE-010D	03/07/16	Zone 5	Multiple Strata	ND	22.20	22.34	6.70	26.10	15.50													33.3		Flow Tube
HSVE-010S	10/01/15	Zone 5	N. Olive	NA	NA	11.55	7.83	12.33														0		None
HSVE-010S	10/06/15	Zone 5	N. Olive	ND	10.37	11.38	7.83	12.33	2.54													0		None
HSVE-010S	10/14/15	Zone 5	N. Olive	ND	Dry	11.20	7.83	12.33	4.50		11.0	11.0	19.9	0.20	0.00	0.00	3.00					0		None
HSVE-010S	10/27/15	Zone 5	N. Olive	ND	Dry	11.40	7.83	12.33	4.50													0		None
HSVE-010S	11/10/15	Zone 5	N. Olive	ND	10.04	11.35	7.83	12.33	2.21													0		None
HSVE-010S	11/18/15	Zone 5	N. Olive	ND	9.98	11.50	7.83	12.33	2.15		250	226	20.4	0.40	23.9	0.00	61.0	0.00	0.00	0.00	60.0	100		None
HSVE-010S	12/01/15	Zone 5	N. Olive	ND	10.81	11.85	7.83	12.33	2.98													100		None
HSVE-010S	12/09/15	Zone 5	N. Olive	ND	Dry	11.40	7.83	12.33	4.50		131	103	20.6	0.30	28.2	0.00	33.0	0.00	0.00	0.00	47.0	100		None
HSVE-010S	01/05/16	Zone 5	N. Olive	ND	10.98	11.91	7.83	12.33	3.15													100		None
HSVE-010S	01/13/16	Zone 5	N. Olive	ND	11.15	11.37	7.83	12.33	3.32		73.0	51.9	20.5	0.30	21.1	0.00	15.0					0		None
HSVE-010S	01/26/16	Zone 5	N. Olive	ND	Dry	11.90	7.83	12.33	4.50													0		None
HSVE-010S	02/09/16	Zone 5	N. Olive	ND	Dry	11.90	7.83	12.33	4.50													0		None
HSVE-010S	03/07/16	Zone 5	N. Olive	ND	11.05	11.35	7.83	12.33	3.22													0		None
HSVE-012D	10/01/15	Zone 4	Main Silt	NA	NA	26.50	6.74	26.14		17.80												100		Viton Stinger
HSVE-012D	10/06/15	Zone 4	Main Silt	ND	24.14	26.53	6.74	26.14	17.40													100		Viton Stinger
HSVE-012D	10/14/15	Zone 4	Main Silt	ND	24.90	26.47	6.74	26.14	18.16	17.80	10,500	10,050	19.5	1.20	450	7.00	712	42.7	8.25	113	63.0	100		Viton Stinger
HSVE-012D	10/22/15	Zone 4	Main Silt							23.90												100		Viton Stinger
HSVE-012D	10/27/15	Zone 4	Main Silt	ND	25.55	26.53	6.74	26.14	18.81													100		Viton Stinger
HSVE-012D	11/10/15	Zone 4	Main Silt	ND	25.80	26.56	6.74	26.14	19.06													100		Viton Stinger
HSVE-012D	11/18/15	Zone 4	Main Silt	ND	23.50	26.50	6.74	26.14	16.76	23.90	10,500	9,955	19.5	0.90	545	7.00	696		4.11	118	58.0	100		Viton Stinger
HSVE-012D	11/20/15	Zone 4	Main Silt							22.50												100		Viton Stinger
HSVE-012D	12/01/15	Zone 4	Main Silt	ND	25.40	26.44	6.74	26.14	18.66													100		Viton Stinger
HSVE-012D	12/09/15	Zone 4	Main Silt	ND	24.84	26.25	6.74	26.14	18.10	22.50	1,300	1,262	20.8	0.20	38.0	0.00	189	45.8	9.54	115	62.0	100		Viton Stinger
HSVE-012D	12/30/15	Zone 4	Main Silt	NA	22.92	26.55	6.74	26.14	16.18	22.50												100		Viton Stinger
HSVE-012D	12/31/15	Zone 4	Main Silt							21.60												100		Viton Stinger
HSVE-012D	01/05/16	Zone 4	Main Silt	ND	20.45	25.75	6.74	26.14	13.71													100		Viton Stinger
HSVE-012D	01/13/16	Zone 4	Main Silt	ND	20.45	25.75	6.74	26.14	13.71	21.60	73.0	73.0	20.8	0.00	0.00	0.00	26.0	30.3	3.76	94.0	43.0	100		Viton Stinger
HSVE-012D	01/26/16	Zone 4	Main Silt	ND	20.72	26.44	6.74	26.14	13.98													100		Viton Stinger

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-012D	02/09/16	Zone 4	Main Silt	ND	20.75	25.72	6.74	26.14	14.01													100		Viton Stinger
HSVE-012D	02/25/16	Zone 4	Main Silt	ND	23.50	26.45	6.74	26.14	16.76	21.60	275	267	20.8	0.00	8.45	0.00	73.0	43.6	7.24	69.0	47.0	100		Viton Stinger
HSVE-012D	03/08/16	Zone 4	Main Silt	ND	6.17	13.65	6.74	26.14	-0.57													100		Viton Stinger
HSVE-012D	03/22/16	Zone 4	Main Silt	ND	24.35	26.50	6.74	26.14	17.61	21.60	5,269	4,729	20.2	0.70	540	5.00	408	36.1	5.05	66.0	59.0	100		Viton Stinger
HSVE-012S	10/01/15	Zone 4	N. Olive															0.00	0.00	108	72.0	0		None
HSVE-012S	10/06/15	Zone 4	N. Olive	ND	7.55	13.97	5.66	15.16	1.89													0		None
HSVE-012S	10/14/15	Zone 4	N. Olive	ND	8.18	13.98	5.66	15.16	2.52		20.0	15.7	20.7	0.10	4.29	0.00	6.00					0		None
HSVE-012S	10/27/15	Zone 4	N. Olive	ND	8.70	14.70	5.66	15.16	3.04													0		None
HSVE-012S	11/10/15	Zone 4	N. Olive	ND	7.33	13.95	5.66	15.16	1.67													0		None
HSVE-012S	11/18/15	Zone 4	N. Olive	ND	5.86	13.96	5.66	15.16	0.20		157	157	20.7	0.10	0.00	0.00	49.0					0		None
HSVE-012S	12/01/15	Zone 4	N. Olive	ND	5.55	13.00	5.66	15.16	-0.11													0		None
HSVE-012S	12/09/15	Zone 4	N. Olive	ND	7.84	13.92	5.66	15.16	2.18		78.0	78.0	20.8	0.20	0.00	0.00	21.0					0		None
HSVE-012S	12/30/15	Zone 4	N. Olive	NA	6.20	13.85	5.66	15.16	0.54													0		None
HSVE-012S	12/31/15	Zone 4	N. Olive	NA	NA	13.85	5.66	15.16														0		None
HSVE-012S	01/05/16	Zone 4	N. Olive	ND	7.58	12.50	5.66	15.16	1.92													0		None
HSVE-012S	01/13/16	Zone 4	N. Olive	ND	7.65	13.90	5.66	15.16	1.99		22.0	22.0	20.7	0.20	0.00	0.00	8.00					0		None
HSVE-012S	01/26/16	Zone 4	N. Olive	ND	5.85	14.92	5.66	15.16	0.19													0		None
HSVE-012S	02/09/16	Zone 4	N. Olive	ND	8.30	13.90	5.66	15.16	2.64													0		None
HSVE-012S	02/12/16	Zone 4	N. Olive	NA	NA	13.90	5.66	15.16														16.7		None
HSVE-012S	02/25/16	Zone 4	N. Olive	ND	5.90	12.50	5.66	15.16	0.24		51.0	51.0	20.7	0.20	0.00	0.00	12.0		0.29	43.0	42.0	16.7		None
HSVE-012S	03/08/16	Zone 4	N. Olive	ND	23.65	26.47	5.66	15.16	9.50													16.7		None
HSVE-012S	03/14/16	Zone 4	N. Olive	NA	NA	26.47	5.66	15.16														33.3		None
HSVE-012S	03/22/16	Zone 4	N. Olive	ND	8.00	13.30	5.66	15.16	2.34		173	173	20.8	0.00	0.00	0.00	39.0	73.0	0.08	61.0	63.0	33.3		None
HSVE-017D	10/01/15	Zone 4	Multiple Strata															46.3	0.60	108	66.0	0		Flow Tube
HSVE-017D	10/06/15	Zone 4	Multiple Strata	ND	23.98	25.05	6.63	26.03	17.35													0		Flow Tube
HSVE-017D	10/14/15	Zone 4	Multiple Strata	ND	18.98	25.05	6.63	26.03	12.35		177	41.3	20.8	0.00	136	0.00	15.0	52.4	0.76	104	67.0	33.3		Flow Tube
HSVE-017D	10/19/15	Zone 4	Multiple Strata	NA	NA	25.05	6.63	26.03														100		Flow Tube
HSVE-017D	10/27/15	Zone 4	Multiple Strata	ND	23.76	25.05	6.63	26.03	17.13													100		Flow Tube
HSVE-017D	11/10/15	Zone 4	Multiple Strata	ND	16.90	25.20	6.63	26.03	10.27													100		Flow Tube
HSVE-017D	11/19/15	Zone 4	Multiple Strata	ND	24.10	25.20	6.63	26.03	17.47		158	146	20.8	0.00	12.5	0.00	37.0	75.2	1.58	113	56.0	100		Flow Tube
HSVE-017D	12/02/15	Zone 4	Multiple Strata	ND	16.80	25.20	6.63	26.03	10.17													100		Flow Tube
HSVE-017D	12/09/15	Zone 4	Multiple Strata	ND	16.80	25.20	6.63	26.03	10.17		269	269	20.8	0.00	0.00	0.00	65.0	43.0	0.50	104	55.0	100		Flow Tube
HSVE-017D	01/05/16	Zone 4	Multiple Strata	ND	10.35	25.57	6.63	26.03	3.72													100		Flow Tube
HSVE-017D	01/13/16	Zone 4	Multiple Strata	ND	11.12	25.57	6.63	26.03	4.49		14.0	14.0	20.5	0.30	0.00	0.00	6.00			125	47.0	100		Flow Tube
HSVE-017D	01/26/16	Zone 4	Multiple Strata	ND	16.00	25.12	6.63	26.03	9.37													100		Flow Tube
HSVE-017D	02/10/16	Zone 4	Multiple Strata	ND	17.65	25.55	6.63	26.03	11.02													100		Flow Tube
HSVE-017D	02/25/16	Zone 4	Multiple Strata	ND	17.90	25.22	6.63	26.03	11.27		32.0	32.0	20.8	0.00	0.00	0.00	10.0	39.5	0.43	114	48.0	100		Flow Tube
HSVE-017D	03/08/16	Zone 4	Multiple Strata	ND	16.12	24.80	6.63	26.03	9.49													100		Flow Tube
HSVE-017D	03/23/16	Zone 4	Multiple Strata	ND	16.74	27.00	6.63	26.03	10.11		63.0	63.0	20.8	0.00	0.00	0.00	17.0	54.9	0.84	109	63.0	100		Flow Tube
HSVE-017S	10/06/15	Zone 4	A Clay	ND	Dry	9.55	5.50	10.20	4.70													0		Flow Tube
HSVE-017S	10/14/15	Zone 4	A Clay	ND	Dry	9.55	5.50	10.20	4.70		12.0	12.0	20.7	0.30	0.00	0.00	4.00					0		Flow Tube
HSVE-017S	10/27/15	Zone 4	A Clay	ND	Dry	9.57	5.50	10.20	4.70													0		Flow Tube
HSVE-017S	11/10/15	Zone 4	A Clay	ND	10.76	11.15	5.50	10.20	4.70													0		Flow Tube
HSVE-017S	11/19/15	Zone 4	A Clay	ND	Dry	9.55	5.50	10.20	4.70		143	143	20.6	0.30	0.00	0.00	37.0					0		Flow Tube
HSVE-017S	11/30/15	Zone 4	A Clay	NA	NA	9.55	5.50	10.20														50		Flow Tube
HSVE-017S	12/02/15	Zone 4	A Clay	ND	8.36	11.20	5.50	10.20	2.86													50		Flow Tube
HSVE-017S	12/03/15	Zone 4	A Clay	NA	NA	11.20	5.50	10.20														100		Flow Tube
HSVE-017S	12/09/15	Zone 4	A Clay	ND	8.94	13.60	5.50	10.20	3.44		352	352	20.8	0.00	0.00	0.00	81.0	43.1	0.50	104	54.0	50		Flow Tube
HSVE-017S	12/14/15	Zone 4	A Clay	NA	NA	13.60	5.50	10.20														100		Flow Tube
HSVE-017S	12/22/15	Zone 4	A Clay	ND	7.20	11.10	5.50	10.20	1.70													100		Flow Tube
HSVE-017S	12/29/15	Zone 4	A Clay	NA	NA	11.10	5.50	10.20														0		Flow Tube
HSVE-017S	01/05/16	Zone 4	A Clay	ND	Dry	10.10	5.50	10.20	4.70													0		Flow Tube
HSVE-017S	01/13/16	Zone 4	A Clay	ND	Dry	25.56	5.50	10.20	4.70		49.0	49.0	20.6	0.00	0.00	0.00	17.0					0		Flow Tube
HSVE-017S	01/26/16	Zone 4	A Clay	ND	Dry	10.10	5.50	10.20	4.70													0		Flow Tube
HSVE-017S	02/10/16	Zone 4	A Clay	ND	Dry	10.13	5.50	10.20	4.70													0		Flow Tube
HSVE-017S	02/12/16	Zone 4	A Clay	NA	NA	10.13	5.50	10.20														16.7		Flow Tube
HSVE-017S	02/25/16	Zone 4	A Clay	ND	Dry	10.22	5.50	10.20	4.70		12.0	12.0	20.8	0.00	0.00	0.00	4.00	17.2	0.06	11.0	44.0	16.7		Flow Tube
HSVE-017S	03/02/16	Zone 4	A Clay	NA	NA	10.22	5.50	10.20														33.3		Flow Tube

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-017S	03/08/16	Zone 4	A Clay	ND	8.38	10.25	5.50	10.20	2.88													33.3		Flow Tube
HSVE-017S	03/14/16	Zone 4	A Clay	NA	NA	10.25	5.50	10.20														50		Flow Tube
HSVE-017S	03/23/16	Zone 4	A Clay	ND	8.15	10.15	5.50	10.20	2.65		91.0	91.0	20.8	0.00	0.00	0.00	23.0	36.6	0.37	110	56.0	50		Flow Tube
HSVE-018D	10/06/15	Zone 4	Multiple Strata	ND	14.12	26.05	6.62	26.02	7.50													100		None
HSVE-018D	10/14/15	Zone 4	Multiple Strata	ND	15.72	26.00	6.62	26.02	9.10		48.0	46.6	20.8	0.00	1.43	0.00	13.0					100		None
HSVE-018D	10/19/15	Zone 4	Multiple Strata	NA	NA	26.00	6.62	26.02														100		None
HSVE-018D	10/27/15	Zone 4	Multiple Strata	ND	16.68	26.00	6.62	26.02	10.06													100		None
HSVE-018D	11/03/15	Zone 4	Multiple Strata	NA	NA	26.00	6.62	26.02														0		None
HSVE-018D	11/10/15	Zone 4	Multiple Strata	ND	25.52	26.02	6.62	26.02	18.90													0		None
HSVE-018D	11/19/15	Zone 4	Multiple Strata	ND	24.14	26.00	6.62	26.02	17.52		132	132	20.2	0.50	0.00	0.00	36.0					0		None
HSVE-018D	11/30/15	Zone 4	Multiple Strata	NA	NA	26.00	6.62	26.02														50		None
HSVE-018D	12/02/15	Zone 4	Multiple Strata	ND	17.84	26.10	6.62	26.02	11.22													50		None
HSVE-018D	12/09/15	Zone 4	Multiple Strata	ND	18.30	26.15	6.62	26.02	11.68		236	236	20.8	0.00	0.00	0.00	56.0	57.8	0.06	123	53.0	100		None
HSVE-018D	01/05/16	Zone 4	Multiple Strata	ND	12.70	26.00	6.62	26.02	6.08													100		None
HSVE-018D	01/05/16	Zone 4	Multiple Strata	ND	12.70	26.00	6.62	26.02	6.08													100		None
HSVE-018D	01/13/16	Zone 4	Multiple Strata	ND	13.40	26.00	6.62	26.02	6.78		26.0	26.0	20.8	0.00	0.00	0.00	10.0	53.2	0.05	121	49.0	100		None
HSVE-018D	01/26/16	Zone 4	Multiple Strata	ND	14.10	26.05	6.62	26.02	7.48													100		None
HSVE-018D	02/10/16	Zone 4	Multiple Strata	ND	15.10	26.00	6.62	26.02	8.48													100		None
HSVE-018D	02/25/16	Zone 4	Multiple Strata	ND	16.85	26.00	6.62	26.02	10.23		26.0	26.0	20.8	0.00	0.00	0.00	8.00	52.7	0.05	128	46.0	100		None
HSVE-018D	03/08/16	Zone 4	Multiple Strata	ND	16.30	26.00	6.62	26.02	9.68													100		None
HSVE-018D	03/23/16	Zone 4	Multiple Strata	ND	16.05	26.10	6.62	26.02	9.43		58.0	58.0	20.8	0.00	0.00	0.00	17.0	51.3	0.05	132	66.0	100		None
HSVE-018S	10/06/15	Zone 4	A Clay	ND	Dry	11.05	5.52	10.22	4.70													0		None
HSVE-018S	10/14/15	Zone 4	A Clay	ND	10.79	11.05	5.52	10.22	4.70		10.0	10.0	20.8	0.00	0.00	0.00	4.00					0		None
HSVE-018S	10/27/15	Zone 4	A Clay	ND	10.85	11.08	5.52	10.22	4.70															None
HSVE-018S	11/10/15	Zone 4	A Clay	ND	10.55	11.03	5.52	10.22	4.70															None
HSVE-018S	11/19/15	Zone 4	A Clay	ND	10.50	11.06	5.52	10.22	4.70		69.0	66.2	20.7	0.00	2.78	0.00	19.0					0		None
HSVE-018S	11/30/15	Zone 4	A Clay	NA	NA	11.06	5.52	10.22														50		None
HSVE-018S	12/02/15	Zone 4	A Clay	ND	7.20	11.05	5.52	10.22	1.68													50		None
HSVE-018S	12/03/15	Zone 4	A Clay	NA	NA	11.05	5.52	10.22														100		None
HSVE-018S	12/09/15	Zone 4	A Clay	ND	8.82	11.00	5.52	10.22	3.30		312	302	20.7	0.20	9.86	0.00	57.0	52.7	0.05	123	54.0	50		None
HSVE-018S	12/14/15	Zone 4	A Clay	NA	NA	11.00	5.52	10.22														100		None
HSVE-018S	12/22/15	Zone 4	A Clay	ND	9.62	11.05	5.52	10.22	4.10													100		None
HSVE-018S	01/05/16	Zone 4	A Clay	ND	7.44	10.78	5.52	10.22	1.92													100		None
HSVE-018S	01/05/16	Zone 4	A Clay	ND	7.44	10.78	5.52	10.22	1.92													100		None
HSVE-018S	01/13/16	Zone 4	A Clay	ND	7.56	10.78	5.52	10.22	2.04		13.0	13.0	20.8	0.00	0.00	0.00	5.00		4.26	124	47.0	100		None
HSVE-018S	01/26/16	Zone 4	A Clay	ND	9.15	10.54	5.52	10.22	3.63													100		None
HSVE-018S	02/10/16	Zone 4	A Clay	ND	9.40	10.76	5.52	10.22	3.88													100		None
HSVE-018S	02/25/16	Zone 4	A Clay	ND	8.32	10.45	5.52	10.22	2.80		6.00	6.00	20.8	0.20	0.00	0.00	2.0		0.68	125	46.0	100		None
HSVE-018S	03/08/16	Zone 4	A Clay	ND	7.00	10.48	5.52	10.22	1.48													100		None
HSVE-018S	03/23/16	Zone 4	A Clay	ND	7.25	10.47	5.52	10.22	1.73		30.0	30.0	20.8	0.00	0.00	0.00	11.0	83.1	0.13	131	62.0	100		None
HSVE-019D	10/06/15	Zone 4	Multiple Strata	ND	14.20	24.55	6.66	26.06	7.54													100		None
HSVE-019D	10/14/15	Zone 4	Multiple Strata	ND	15.79	24.80	6.66	26.06	9.13		60.0	57.1	20.8	0.00	2.86	0.00	17.0	79.2	0.12	131	71.0	100		None
HSVE-019D	10/27/15	Zone 4	Multiple Strata	ND	16.77	24.85	6.66	26.06	10.11													100		None
HSVE-019D	11/03/15	Zone 4	Multiple Strata	NA	NA	24.85	6.66	26.06														0		None
HSVE-019D	11/10/15	Zone 4	Multiple Strata	ND	24.86	25.24	6.66	26.06	18.20													0		None
HSVE-019D	11/19/15	Zone 4	Multiple Strata	ND	Dry	25.18	6.66	26.06	19.40		970	671	20.6	0.30	299	0.00	122					0		None
HSVE-019D	11/20/15	Zone 4	Multiple Strata	NA	NA	25.18	6.66	26.06														50		None
HSVE-019D	11/30/15	Zone 4	Multiple Strata	NA	NA	25.18	6.66	26.06														100		None
HSVE-019D	12/02/15	Zone 4	Multiple Strata	ND	9.20	25.30	6.66	26.06	2.54													100		None
HSVE-019D	12/09/15	Zone 4	Multiple Strata	ND	10.10	25.25	6.66	26.06	3.44		113	113	20.8	0.00	0.00	0.00	28.0	79.0	0.11	121	47.0	100		None
HSVE-019D	01/05/16	Zone 4	Multiple Strata	ND	15.98	24.00	6.66	26.06	9.32													100		None
HSVE-019D	01/13/16	Zone 4	Multiple Strata	ND	16.65	23.80	6.66	26.06	9.99		27.0	27.0	20.8	0.00	0.00	0.00	10.0		0.97	124	46.0	100		None
HSVE-019D	01/26/16	Zone 4	Multiple Strata	ND	14.65	23.60	6.66	26.06	7.99													100		None
HSVE-019D	02/10/16	Zone 4	Multiple Strata	ND	15.90	22.60	6.66	26.06	9.24													100		None
HSVE-019D	02/25/16	Zone 4	Multiple Strata	ND	13.15	23.45	6.66	26.06	6.49		16.0	16.0	20.8	0.00	0.00	0.00	5.00	77.3	0.11	133	47.0	100		None
HSVE-019D	03/08/16	Zone 4	Multiple Strata	ND	9.70	23.88	6.66	26.06	3.04													100		None
HSVE-019D	03/24/16	Zone 4	Multiple Strata	ND	14.90	23.28	6.66	26.06	8.24		116	73.4	20.7	0.20	42.7	0.00	15.0	125	0.30	139	57.0	100		None
HSVE-019S	10/06/15	Zone 4	N. Olive	ND	Dry	9.30	4.19	8.89	4.70													0		Viton Stinger

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-019S	10/14/15	Zone 4	N. Olive	ND	Dry	9.30	4.19	8.89	4.70	8.80	10.0	10.0	20.6	0.20	0.00	0.00	4.00					0		Viton Stinger
HSVE-019S	10/27/15	Zone 4	N. Olive	ND	Dry	9.30	4.19	8.89	4.70													0		Viton Stinger
HSVE-019S	11/10/15	Zone 4	N. Olive	ND	Dry	10.23	4.19	8.89	4.70													0		Viton Stinger
HSVE-019S	11/19/15	Zone 4	N. Olive	ND	Dry	9.30	4.19	8.89	4.70	8.80	70.0	70.0	20.7	0.30	0.00	0.00	21.0					0		Viton Stinger
HSVE-019S	11/30/15	Zone 4	N. Olive	NA	NA	9.30	4.19	8.89		8.80												50		Viton Stinger
HSVE-019S	12/02/15	Zone 4	N. Olive	ND	Dry	9.06	4.19	8.89	4.70													50		Viton Stinger
HSVE-019S	12/03/15	Zone 4	N. Olive	NA	NA	9.06	4.19	8.89		8.80												100		Viton Stinger
HSVE-019S	12/09/15	Zone 4	N. Olive	ND	Dry	9.00	4.19	8.89	4.70	8.80	33.0	33.0	20.8	0.20	0.00	0.00	9.00	45.1	1.79	118	47.0	100		Viton Stinger
HSVE-019S	01/05/16	Zone 4	N. Olive	ND	Dry	9.00	4.19	8.89	4.70													100		Viton Stinger
HSVE-019S	01/13/16	Zone 4	N. Olive	ND	Dry	9.30	4.19	8.89	4.70	8.80	8.00	8.00	20.8	0.00	0.00	0.00	3.00	46.6	1.89	120	36.0	100		Viton Stinger
HSVE-019S	01/26/16	Zone 4	N. Olive	ND	9.85	10.05	4.19	8.89	4.70													100		Viton Stinger
HSVE-019S	02/10/16	Zone 4	N. Olive	ND	Dry	9.05	4.19	8.89	4.70													100		Viton Stinger
HSVE-019S	02/25/16	Zone 4	N. Olive	ND	Dry	9.04	4.19	8.89	4.70	8.80	11.0	11.0	20.8	0.00	0.00	0.00	4.00	47.5	1.99	121	41.0	100		Viton Stinger
HSVE-019S	03/08/16	Zone 4	N. Olive	ND	8.80	9.05	4.19	8.89	4.61													100		Viton Stinger
HSVE-019S	03/24/16	Zone 4	N. Olive	ND	8.90	9.03	4.19	8.89	4.70	8.80	8.00	8.00	20.8	0.00	0.00	0.00	3.00	45.4	1.93	130	55.0	100		Viton Stinger
HSVE-020D	10/01/15	Zone 1	Multiple Strata															187	0.55	76.0	65.0	0		None
HSVE-020D	10/05/15	Zone 1	Multiple Strata	ND	23.80	25.72	5.68	25.18	18.12													0		None
HSVE-020D	10/13/15	Zone 1	Multiple Strata	ND	24.10	25.85	5.68	25.18	18.42		3.00	3.00	20.7	0.10	0.00	0.00	1.00					0		None
HSVE-020D	10/26/15	Zone 1	Multiple Strata	ND	Dry	25.86	5.68	25.18	19.50													0		None
HSVE-020D	11/09/15	Zone 1	Multiple Strata	ND	Dry	25.45	5.68	25.18	19.50													0		None
HSVE-020D	11/16/15	Zone 1	Multiple Strata	ND	Dry	25.66	5.68	25.18	19.50		2.00	2.00	20.6	0.20	0.00	0.00	0.00					0		None
HSVE-020D	11/30/15	Zone 1	Multiple Strata	NA	NA	25.66	5.68	25.18														50		None
HSVE-020D	12/01/15	Zone 1	Multiple Strata	ND	Dry	25.50	5.68	25.18	19.50													50		None
HSVE-020D	12/08/15	Zone 1	Multiple Strata	ND	22.90	25.48	5.68	25.18	17.22		73.0	12.4	20.8	0.00	60.6	0.00	4.00	158	0.38	73.0	50.0	50		None
HSVE-020D	12/15/15	Zone 1	Multiple Strata	NA	NA	25.48	5.68	25.18														33.3		None
HSVE-020D	12/21/15	Zone 1	Multiple Strata	ND	19.75	25.46	5.68	25.18	14.07													33.3		None
HSVE-020D	01/04/16	Zone 1	Multiple Strata	ND	12.80	25.48	5.68	25.18	7.12													33.3		None
HSVE-020D	01/12/16	Zone 1	Multiple Strata	ND	10.85	15.65	5.68	25.18	5.17		4.00	4.00	20.8	0.00	0.00	0.00	2.00	53.9	0.05	114	48.0	50		None
HSVE-020D	01/26/16	Zone 1	Multiple Strata	ND	12.75	25.55	5.68	25.18	7.07													50		None
HSVE-020D	02/09/16	Zone 1	Multiple Strata	ND	14.00	25.50	5.68	25.18	8.32													50		None
HSVE-020D	02/12/16	Zone 1	Multiple Strata	NA	NA	25.50	5.68	25.18														66.7		None
HSVE-020D	02/23/16	Zone 1	Multiple Strata	ND	13.40	25.48	5.68	25.18	7.72		48.0	48.0	20.8	0.00	0.00	0.00	16.0	68.2	0.08	108	58.0	66.7		None
HSVE-020D	03/01/16	Zone 1	Multiple Strata	NA	NA	25.48	5.68	25.18														100		None
HSVE-020D	03/08/16	Zone 1	Multiple Strata	ND	13.45	25.50	5.68	25.18	7.77													100		None
HSVE-020D	03/14/16	Zone 1	Multiple Strata	NA	NA	25.50	5.68	25.18														83.3		None
HSVE-020D	03/22/16	Zone 1	Multiple Strata		13.50	25.70	5.68	25.18			43.0	43.0	20.8	0.00	0.00	0.00	17.0	64.0	0.07	108	54.0	100		None
HSVE-020S	10/05/15	Zone 1	N. Olive	ND	Dry	14.25	5.69	14.49	8.80													100		None
HSVE-020S	10/13/15	Zone 1	N. Olive	ND	Dry	14.23	5.69	14.49	8.80		855	101	20.8	0.10	754	0.00	13.0	140	0.32	87.0	62.0	50		None
HSVE-020S	10/19/15	Zone 1	N. Olive	NA	NA	14.23	5.69	14.49														100		None
HSVE-020S	10/26/15	Zone 1	N. Olive	ND	Dry	14.30	5.69	14.49	8.80													100		None
HSVE-020S	11/09/15	Zone 1	N. Olive	ND	11.87	14.30	5.69	14.49	6.18													100		None
HSVE-020S	11/16/15	Zone 1	N. Olive	ND	11.58	14.25	5.69	14.49	5.89		14.0	5.43	20.7	0.00	8.57	0.00	1.00	134	0.29	89.0	53.0	100		None
HSVE-020S	12/01/15	Zone 1	N. Olive	ND	Dry	14.10	5.69	14.49	8.80													100		None
HSVE-020S	12/08/15	Zone 1	N. Olive	ND	9.35	14.32	5.69	14.49	3.66		35.0	18.1	20.8	0.00	16.9	0.00	5.00	98.0	0.16	103	49.0	100		None
HSVE-020S	12/15/15	Zone 1	N. Olive	NA	NA	14.32	5.69	14.49														33.3		None
HSVE-020S	12/21/15	Zone 1	N. Olive	ND	9.62	14.32	5.69	14.49	3.93													33.3		None
HSVE-020S	01/04/16	Zone 1	N. Olive	ND	8.75	14.95	5.69	14.49	3.06													33.3		None
HSVE-020S	01/12/16	Zone 1	N. Olive	ND	10.85	15.65	5.69	14.49	5.16		18.0	7.86	20.8	0.00	10.1	0.00	3.00		0.23	120	47.0	50		None
HSVE-020S	01/26/16	Zone 1	N. Olive	ND	8.60	13.62	5.69	14.49	2.91													50		None
HSVE-020S	02/09/16	Zone 1	N. Olive	ND	8.80	14.95	5.69	14.49	3.11													50		None
HSVE-020S	02/12/16	Zone 1	N. Olive	NA	NA	14.95	5.69	14.49														66.7		None
HSVE-020S	02/23/16	Zone 1	N. Olive	ND	8.55	14.95	5.69	14.49	2.86		21.0	21.0	20.8	0.00	0.00	0.00	6.00	54.9	0.05	102	49.0	66.7		None
HSVE-020S	03/01/16	Zone 1	N. Olive	NA	NA	14.95	5.69	14.49														66.7		None
HSVE-020S	03/08/16	Zone 1	N. Olive	ND	8.75	11.46	5.69	14.49	3.06													66.7		None
HSVE-020S	03/22/16	Zone 1	N. Olive	ND	8.36	15.00	5.69	14.49	2.67		22.0	22.0	20.8	0.00	0.00	0.00	9.00	133	0.31	118	49.0	83.3		None
HSVE-021	10/05/15	Zone 3	Multiple Strata	ND	12.60	23.15	6.99	26.39	5.61													100		None
HSVE-021	10/12/15	Zone 3	Multiple Strata	ND	16.90	23.23	6.99	26.39	9.91		155	133	20.7	0.30	22.2	0.00	34.0	33.1	2.22	120	61.0	100		None
HSVE-021	10/26/15	Zone 3	Multiple Strata	ND	13.98	23.25	6.99	26.39	6.99													100		None

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OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-021	11/09/15	Zone 3	Multiple Strata	ND	Dry	23.25	6.99	26.39	19.40													100		None
HSVE-021	11/17/15	Zone 3	Multiple Strata	ND	18.00	23.15	6.99	26.39	11.01		120	120	20.6	0.40	0.00	0.00	25.0	32.4	2.10	119	58.0	100		None
HSVE-021	12/01/15	Zone 3	Multiple Strata	ND	14.40	23.80	6.99	26.39	7.41													100		None
HSVE-021	12/07/15	Zone 3	Multiple Strata	ND	18.11	23.65	6.99	26.39	11.12		442	435	20.6	0.40	7.14	0.00	96.0	27.2	1.46	119	51.0	100		None
HSVE-021	01/04/16	Zone 3	Multiple Strata	ND	Dry	23.50	6.99	26.39	19.40													100		None
HSVE-021	01/11/16	Zone 3	Multiple Strata	ND	17.05	23.45	6.99	26.39	10.06		23.0	17.4	20.6	0.20	5.63	0.00	4.00	23.8	1.12	127	38.0	100		None
HSVE-021	01/25/16	Zone 3	Multiple Strata	ND	11.80	23.44	6.99	26.39	4.81													100		None
HSVE-021	02/08/16	Zone 3	Multiple Strata	ND	19.53	23.82	6.99	26.39	12.54													100		None
HSVE-021	02/22/16	Zone 3	Multiple Strata	ND	16.80	23.40	6.99	26.39	9.81		717	339	20.5	0.30	378	0.00	52.0	23.2	1.04	113	50.0	100		None
HSVE-021	03/10/16	Zone 3	Multiple Strata	ND	Dry	23.50	6.99	26.39	19.40													100		None
HSVE-021	03/21/16	Zone 3	Multiple Strata	ND	17.79	23.50	6.99	26.39	10.80		373	264	20.4	0.40	109	0.00	69.0					100		None
HSVE-022	10/06/15	Zone 5	Main Silt	ND	15.98	23.80	6.26	25.76	9.72													100		Flow Tube
HSVE-022	10/14/15	Zone 5	Main Silt	ND	11.85	23.40	6.26	25.76	5.59		150	131	20.7	0.20	18.6	0.00	35.0	19.0	0.11	133	66.0	100		Flow Tube
HSVE-022	10/27/15	Zone 5	Main Silt	ND	16.48	22.22	6.26	25.76	10.22													100		Flow Tube
HSVE-022	11/10/15	Zone 5	Main Silt	ND	17.90	21.30	6.26	25.76	11.64													100		Flow Tube
HSVE-022	11/18/15	Zone 5	Main Silt	ND	15.70	21.18	6.26	25.76	9.44		350	335	20.5	0.30	15.5	0.00	78.0	22.2	0.15	135	60.0	100		Flow Tube
HSVE-022	12/01/15	Zone 5	Main Silt	ND	15.10	20.14	6.26	25.76	8.84													100		Flow Tube
HSVE-022	12/09/15	Zone 5	Main Silt	ND	14.40	19.66	6.26	25.76	8.14		354	327	20.8	0.30	26.8	0.00	61.0	14.2	0.06	130	55.0	100		Flow Tube
HSVE-022	01/05/16	Zone 5	Main Silt	ND	14.90	24.84	6.26	25.76	8.64													100		Flow Tube
HSVE-022	01/13/16	Zone 5	Main Silt	ND	13.90	19.53	6.26	25.76	7.64		35.0	35.0	20.8	0.00	0.00	0.00	12.0	13.2	0.05	127	49.0	100		Flow Tube
HSVE-022	01/26/16	Zone 5	Main Silt	ND	14.90	19.54	6.26	25.76	8.64													100		Flow Tube
HSVE-022	02/09/16	Zone 5	Main Silt	ND	14.52	19.25	6.26	25.76	8.26													100		Flow Tube
HSVE-022	02/25/16	Zone 5	Main Silt	ND	17.90	19.36	6.26	25.76	11.64		1,055	445	20.5	0.30	610	0.00	65.0	17.7	0.07	45.0	47.0	100		Flow Tube
HSVE-022	03/08/16	Zone 5	Main Silt	ND	19.10	19.42	6.26	25.76	12.84													100		Flow Tube
HSVE-022	03/22/16	Zone 5	Main Silt	ND	18.90	19.45	6.26	25.76	12.64		330	240	20.8	0.00	89.7	0.00	49.0		0.00	30.0		100		Flow Tube
HSVE-023D	10/05/15	Zone 1	Multiple Strata	ND	11.18	24.10	6.51	25.91	4.67													100		None
HSVE-023D	10/13/15	Zone 1	Multiple Strata	ND	11.62	24.45	6.51	25.91	5.11		11,500	2,297	19.5	1.30	9,203	8.00	110	53.0	0.05	117	60.0	100		None
HSVE-023D	10/26/15	Zone 1	Multiple Strata	ND	11.40	24.02	6.51	25.91	4.89													100		None
HSVE-023D	11/09/15	Zone 1	Multiple Strata	ND	11.10	24.10	6.51	25.91	4.59													100		None
HSVE-023D	11/16/15	Zone 1	Multiple Strata	ND	14.90	25.15	6.51	25.91	8.39		7,700	1,386	19.8	0.70	6,314	5.00	71.0	0.00	0.00	113	55.0	100		None
HSVE-023D	12/01/15	Zone 1	Multiple Strata	ND	7.35	24.10	6.51	25.91	0.84													100		None
HSVE-023D	12/08/15	Zone 1	Multiple Strata	ND	8.70	24.15	6.51	25.91	2.19		6,520	1,027	20.2	0.50	5,493	10.0	51.0	153	0.40	110	51.0	100		None
HSVE-023D	12/29/15	Zone 1	Multiple Strata	NA	NA	24.15	6.51	25.91														0		None
HSVE-023D	01/04/16	Zone 1	Multiple Strata	ND	12.60	24.00	6.51	25.91	6.09													0		None
HSVE-023D	01/12/16	Zone 1	Multiple Strata	ND	14.20	23.96	6.51	25.91	7.69		9.00	9.00	20.8	0.00	0.00	0.00	1.00					0		None
HSVE-023D	01/25/16	Zone 1	Multiple Strata	ND	Dry	20.00	6.51	25.91	19.40													0		None
HSVE-023D	02/09/16	Zone 1	Multiple Strata	ND	Dry	19.98	6.51	25.91	19.40													0		None
HSVE-023S	10/05/15	Zone 1	N. Olive	ND	9.95	15.54	6.47	15.97	3.48													100		Flow Tube
HSVE-023S	10/13/15	Zone 1	N. Olive	ND	12.70	15.46	6.47	15.97	6.23		160	44.1	20.8	0.00	116	0.00	8.00	44.9	0.57	113	62.0	100		Flow Tube
HSVE-023S	10/26/15	Zone 1	N. Olive	ND	10.88	15.72	6.47	15.97	4.41													100		Flow Tube
HSVE-023S	11/09/15	Zone 1	N. Olive	ND	10.70	15.73	6.47	15.97	4.23													100		Flow Tube
HSVE-023S	11/16/15	Zone 1	N. Olive	ND	7.44	15.70	6.47	15.97	0.97		32.0	29.1	20.8	0.00	2.86	0.00	4.00	14.6	0.06	115	56.0	100		Flow Tube
HSVE-023S	11/20/15	Zone 1	N. Olive	NA	NA	15.70	6.47	15.97														0		Flow Tube
HSVE-023S	12/01/15	Zone 1	N. Olive	ND	10.74	15.72	6.47	15.97	4.27													0		Flow Tube
HSVE-023S	12/03/15	Zone 1	N. Olive	NA	NA	15.72	6.47	15.97														50		Flow Tube
HSVE-023S	12/08/15	Zone 1	N. Olive	ND	13.10	15.74	6.47	15.97	6.63		92.0	54.0	20.8	0.00	38.0	0.00	13.0	21.1	0.12	106	48.0	100		Flow Tube
HSVE-023S	01/04/16	Zone 1	N. Olive	ND	10.70	15.48	6.47	15.97	4.23													100		Flow Tube
HSVE-023S	01/12/16	Zone 1	N. Olive	ND	11.15	15.50	6.47	15.97	4.68		15.0	7.75	20.8	0.00	7.25	0.00	3.00	0.00	0.00	111	45.0	100		Flow Tube
HSVE-023S	01/25/16	Zone 1	N. Olive	ND	10.70	15.25	6.47	15.97	4.23													100		Flow Tube
HSVE-023S	02/09/16	Zone 1	N. Olive	ND	10.73	15.48	6.47	15.97	4.26													100		Flow Tube
HSVE-023S	02/22/16	Zone 1	N. Olive	ND	10.80	15.40	6.47	15.97	4.33		47.0	47.0	20.8	0.00	0.00	0.00	16.0	14.9	0.06	105	52.0	100		Flow Tube
HSVE-023S	03/08/16	Zone 1	N. Olive	ND	10.60	15.64	6.47	15.97	4.13													100		Flow Tube
HSVE-023S	03/22/16	Zone 1	N. Olive	ND	9.25	15.60	6.47	15.97	2.78		151	148	20.8	0.00	2.94	0.00	45.0	0.00	0.00	115	43.0	50		Flow Tube
HSVE-023S	03/28/16	Zone 1	N. Olive	NA	NA	15.60	6.47	15.97														100		Flow Tube
HSVE-024D	10/05/15	Zone 1	Multiple Strata	ND	18.60	24.50	6.58	25.98	12.02													100		Flow Tube
HSVE-024D	10/13/15	Zone 1	Multiple Strata	ND	18.95	24.37	6.58	25.98	12.37		205	23.8	20.8	0.00	181	0.00	0.00	34.4	0.34	114	68.0	100		Flow Tube
HSVE-024D	10/26/15	Zone 1	Multiple Strata	ND	18.90	24.55	6.58	25.98	12.32													100		Flow Tube
HSVE-024D	11/09/15	Zone 1	Multiple Strata	ND	Dry	24.48	6.58	25.98	19.40													100		Flow Tube

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HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-024D	11/16/15	Zone 1	Multiple Strata	ND	Dry	24.50	6.58	25.98	19.40		20,000	1,429	19.6	1.20	18,571	13.0	76.0	25.0	0.17	103	60.0	100		Flow Tube
HSVE-024D	11/30/15	Zone 1	Multiple Strata	ND	18.70	24.50	6.58	25.98	12.12													100		Flow Tube
HSVE-024D	12/08/15	Zone 1	Multiple Strata	ND	Dry	24.46	6.58	25.98	19.40		198	54.3	20.7	0.10	144	0.00	12.0	29.2	0.23	107	48.0	100		Flow Tube
HSVE-024D	01/04/16	Zone 1	Multiple Strata	ND	11.78	24.62	6.58	25.98	5.20													100		Flow Tube
HSVE-024D	01/12/16	Zone 1	Multiple Strata	ND	12.60	24.60	6.58	25.98	6.02		10.0	10.0	20.8	0.00	0.00	0.00	4.00	0.00	0.00	119	38.0	100		Flow Tube
HSVE-024D	01/25/16	Zone 1	Multiple Strata	ND	17.08	24.50	6.58	25.98	10.50													100		Flow Tube
HSVE-024D	02/09/16	Zone 1	Multiple Strata	ND	12.14	24.60	6.58	25.98	5.56													100		Flow Tube
HSVE-024D	02/22/16	Zone 1	Multiple Strata	ND	11.92	24.60	6.58	25.98	5.34													50		Flow Tube
HSVE-024D	02/25/16	Zone 1	Multiple Strata	ND	17.75	24.52	6.58	25.98	11.17		304	71.6	20.5	0.00	232	0.00	7.00	13.5	0.05	113	45.0	100		Flow Tube
HSVE-024D	03/08/16	Zone 1	Multiple Strata	ND	15.55	24.36	6.58	25.98	8.97													100		Flow Tube
HSVE-024D	03/21/16	Zone 1	Multiple Strata	ND	19.45	24.35	6.58	25.98	12.87		175	66.4	20.8	0.00	109	0.00	18.0	0.00	0.00	118	53.0	100		Flow Tube
HSVE-024S	10/01/15	Zone 1	N. Olive	NA	NA	15.90	7.51	17.01														100		Flow Tube
HSVE-024S	10/05/15	Zone 1	N. Olive	ND	12.60	16.00	7.51	17.01	5.09													100		Flow Tube
HSVE-024S	10/13/15	Zone 1	N. Olive	ND	12.69	15.90	7.51	17.01	5.18		76.0	9.33	20.7	0.20	66.7	0.00	3.00	38.0	0.41	114	64.0	100		Flow Tube
HSVE-024S	10/26/15	Zone 1	N. Olive	ND	12.40	16.00	7.51	17.01	4.89													100		Flow Tube
HSVE-024S	11/09/15	Zone 1	N. Olive	ND	12.50	15.98	7.51	17.01	4.99													100		Flow Tube
HSVE-024S	11/16/15	Zone 1	N. Olive	ND	11.85	15.86	7.51	17.01	4.34		1,400	92.9	19.5	1.30	1,307	0.00	13.0	38.0	0.35	105	0.60	100		Flow Tube
HSVE-024S	11/30/15	Zone 1	N. Olive	ND	10.20	15.90	7.51	17.01	2.69													100		Flow Tube
HSVE-024S	12/08/15	Zone 1	N. Olive	ND	10.85	15.95	7.51	17.01	3.34		252	57.6	18.9	1.50	194	0.00	16.0	41.4	0.46	102	54.0	100		Flow Tube
HSVE-024S	01/04/16	Zone 1	N. Olive	ND	10.58	15.68	7.51	17.01	3.07													100		Flow Tube
HSVE-024S	01/12/16	Zone 1	N. Olive	ND	10.85	15.65	7.51	17.01	3.34		3.00	3.00	20.5	0.40	0.00	0.00	1.00		1.79	115	47.0	100		Flow Tube
HSVE-024S	01/25/16	Zone 1	N. Olive	ND	12.26	15.80	7.51	17.01	4.75													100		Flow Tube
HSVE-024S	02/09/16	Zone 1	N. Olive	ND	11.15	15.70	7.51	17.01	3.64													100		Flow Tube
HSVE-024S	02/22/16	Zone 1	N. Olive	ND	12.65	15.80	7.51	17.01	5.14		721	18.1	20.6	0.60	703	0.00	11.0	16.0	0.07	110	53.0	100		Flow Tube
HSVE-024S	03/08/16	Zone 1	N. Olive	ND	11.92	15.85	7.51	17.01	4.41													100		Flow Tube
HSVE-024S	03/21/16	Zone 1	N. Olive	ND	12.25	15.86	7.51	17.01	4.74		1,130	161	20.3	0.60	969	0.00	25.0	44.2	0.55	117	54.0	100		Flow Tube
HSVE-025D	10/05/15	Zone 1	Multiple Strata	ND	15.43	25.50	6.77	26.37	8.66													100		Viton Stinger
HSVE-025D	10/12/15	Zone 1	Multiple Strata	ND	15.47	25.60	6.77	26.37	8.70	14.90	1,100	267	20.6	0.20	833	0.00	22.0	31.7	4.54	109	69.0	100		Viton Stinger
HSVE-025D	10/26/15	Zone 1	Multiple Strata	ND	15.55	25.74	6.77	26.37	8.78													100		Viton Stinger
HSVE-025D	11/09/15	Zone 1	Multiple Strata	ND	15.73	25.69	6.77	26.37	8.96													100		Viton Stinger
HSVE-025D	11/16/15	Zone 1	Multiple Strata	ND	15.50	25.68	6.77	26.37	8.73	14.90	310	80.0	20.7	0.10	230	0.00	6.00	22.9	2.36	118	53.0	100		Viton Stinger
HSVE-025D	11/30/15	Zone 1	Multiple Strata	ND	15.38	25.60	6.77	26.37	8.61													100		Viton Stinger
HSVE-025D	12/07/15	Zone 1	Multiple Strata	ND	15.30	25.52	6.77	26.37	8.53	14.90	1,300	436	20.6	0.40	864	1.00	52.0	19.7	1.70	108	54.0	100		Viton Stinger
HSVE-025D	12/29/15	Zone 1	Multiple Strata	NA	10.20	25.56	6.77	26.37	3.43	14.90												0		Viton Stinger
HSVE-025D	12/30/15	Zone 1	Multiple Strata	NA	10.22	25.60	6.77	26.37	3.45	10.20												100		Viton Stinger
HSVE-025D	12/31/15	Zone 1	Multiple Strata	NA	9.15	25.60	6.77	26.37	2.38	8.60												100		Viton Stinger
HSVE-025D	01/04/16	Zone 1	Multiple Strata	ND	9.15	25.60	6.77	26.37	2.38													100		Viton Stinger
HSVE-025D	01/11/16	Zone 1	Multiple Strata	ND	9.52	25.50	6.77	26.37	2.75	8.60	600	50.7	20.8	0.00	549	0.00	6.00	14.1	0.86	112	43.0	100		Viton Stinger
HSVE-025D	01/11/16	Zone 1	Multiple Strata	ND	9.26	21.20	6.77	26.37	2.49	8.60	600	50.7	20.8	0.00	549	0.00	6.00	14.1	0.86	112	43.0	100		Viton Stinger
HSVE-025D	01/19/16	Zone 1	Multiple Strata	ND	9.60	25.50	6.77	26.37	2.83													100		Viton Stinger
HSVE-025D	01/25/16	Zone 1	Multiple Strata	ND	9.28	25.58	6.77	26.37	2.51													100		Viton Stinger
HSVE-025D	02/02/16	Zone 1	Multiple Strata							13.60												100		Viton Stinger
HSVE-025D	02/04/16	Zone 1	Multiple Strata							17.00												100		Viton Stinger
HSVE-025D	02/08/16	Zone 1	Multiple Strata	ND	17.10	25.60	6.77	26.37	10.33													100		Viton Stinger
HSVE-025D	02/18/16	Zone 1	Multiple Strata							18.10												100		Viton Stinger
HSVE-025D	02/22/16	Zone 1	Multiple Strata	ND	19.65	25.40	6.77	26.37	12.88	18.10	410	101	20.8	0.00	309	0.00	19.0			106		100		Viton Stinger
HSVE-025D	03/03/16	Zone 1	Multiple Strata							20.10												100		Viton Stinger
HSVE-025D	03/08/16	Zone 1	Multiple Strata	ND	20.15	25.78	6.77	26.37	13.38													100		Viton Stinger
HSVE-025D	03/21/16	Zone 1	Multiple Strata	ND	20.15	25.65	6.77	26.37	13.38	20.10	938	364	20.7	0.10	574	0.00	47.0	37.0	6.06	115	48.0	100		Viton Stinger
HSVE-025D	03/21/16	Zone 1	Multiple Strata	ND	20.15	25.65	6.77	26.37	13.38	20.10	938	364	20.7	0.10	574	0.00	47.0	36.9	6.06	115	51.0	83.3		Viton Stinger
HSVE-025D	03/28/16	Zone 1	Multiple Strata	NA	NA	25.65	6.77	26.37		20.10												100		Viton Stinger
HSVE-026D	10/05/15	Zone 1	Multiple Strata	ND	8.51	24.19	6.53	26.13	1.98													66.7		Viton Stinger
HSVE-026D	10/12/15	Zone 1	Multiple Strata	ND	8.60	24.20	6.53	26.13	2.07	7.80	785	368	20.3	0.20	417	0.00	16.0	20.9	2.03	116	71.0	83.3		Viton Stinger
HSVE-026D	10/19/15	Zone 1	Multiple Strata	NA	NA	24.20	6.53	26.13		7.80												100		Viton Stinger
HSVE-026D	10/26/15	Zone 1	Multiple Strata	ND	8.90	22.95	6.53	26.13	2.37													100		Viton Stinger
HSVE-026D	11/09/15	Zone 1	Multiple Strata	ND	9.72	22.40	6.53	26.13	3.19													100		Viton Stinger
HSVE-026D	11/16/15	Zone 1	Multiple Strata	ND	15.50	24.20	6.53	26.13	8.97	7.80	875	339	20.2	0.60	536	0.00	24.0		1.76	110	56.0	100		Viton Stinger
HSVE-026D	11/30/15	Zone 1	Multiple Strata	ND	8.48	21.60	6.53	26.13	1.95													100		Viton Stinger

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-026D	12/07/15	Zone 1	Multiple Strata	ND	8.96	21.32	6.53	26.13	2.43	7.80	463	289	20.5	0.30	174	0.00	55.0	13.5	0.81	114	53.0	100		Viton Stinger
HSVE-026D	12/29/15	Zone 1	Multiple Strata	NA	7.05	21.25	6.53	26.13	0.52	7.80												0		Viton Stinger
HSVE-026D	01/04/16	Zone 1	Multiple Strata	ND	8.15	21.20	6.53	26.13	1.62													0		Viton Stinger
HSVE-026D	01/11/16	Zone 1	Multiple Strata								1,165	0.00	17.7	0.70	1,165	0.00	7.00					0		Viton Stinger
HSVE-026D	01/15/16	Zone 1	Multiple Strata	NA	NA	21.20	6.53	26.13		7.80												16.7		Viton Stinger
HSVE-026D	01/19/16	Zone 1	Multiple Strata	ND	8.68	21.20	6.53	26.13	2.15													16.7		Viton Stinger
HSVE-026D	01/22/16	Zone 1	Multiple Strata	NA	NA	21.20	6.53	26.13		7.80												33.3		Viton Stinger
HSVE-026D	01/25/16	Zone 1	Multiple Strata	ND	8.80	20.40	6.53	26.13	2.27													33.3		Viton Stinger
HSVE-026D	02/08/16	Zone 1	Multiple Strata	ND	9.47	25.58	6.53	26.13	2.94													33.3		Viton Stinger
HSVE-026D	02/12/16	Zone 1	Multiple Strata	NA	NA	25.58	6.53	26.13		7.80												66.7		Viton Stinger
HSVE-026D	02/22/16	Zone 1	Multiple Strata	ND	8.45	20.14	6.53	26.13	1.92	7.80	2,757	1,110	20.6	0.30	1,647	2.00	62.0	14.7	0.94	111	48.0	66.7		Viton Stinger
HSVE-026D	03/02/16	Zone 1	Multiple Strata							9.80												66.7		Viton Stinger
HSVE-026D	03/08/16	Zone 1	Multiple Strata	ND	10.09	20.08	6.53	26.13	3.56													66.7		Viton Stinger
HSVE-026D	03/14/16	Zone 1	Multiple Strata	NA	NA	20.08	6.53	26.13		9.80												83.3		Viton Stinger
HSVE-026D	03/21/16	Zone 1	Multiple Strata	ND	10.50	19.93	6.53	26.13	3.97	9.80	239	146	20.8	0.00	92.9	0.00	65.0	17.9	1.41	112	53.0	100		Viton Stinger
HSVE-027D	10/05/15	Zone 1	Rand	ND	20.94	25.55	19.16	25.66	1.78													50		Viton Stinger
HSVE-027D	10/12/15	Zone 1	Rand	ND	21.11	22.70	19.16	25.66	1.95	20.40	2,500	736	20.0	0.90	1,764	1.00	53.0	7.18	0.24	119	67.0	50		Viton Stinger
HSVE-027D	10/16/15	Zone 1	Rand							19.70												50		Viton Stinger
HSVE-027D	10/26/15	Zone 1	Rand	ND	20.70	26.22	19.16	25.66	1.54													50		Viton Stinger
HSVE-027D	11/09/15	Zone 1	Rand	ND	17.55	26.43	19.16	25.66	-1.61													50		Viton Stinger
HSVE-027D	11/11/15	Zone 1	Rand	NA	NA	26.43	19.16	25.66		19.70												0		Viton Stinger
HSVE-027D	11/16/15	Zone 1	Rand	ND	Dry	25.95	19.16	25.66	6.50	19.70	725	418	16.3	1.60	307	0.00	64.0					0		Viton Stinger
HSVE-027D	11/20/15	Zone 1	Rand	NA	NA	25.95	19.16	25.66		19.70												50		Viton Stinger
HSVE-027D	11/30/15	Zone 1	Rand	ND	17.60	23.05	19.16	25.66	-1.56													50		Viton Stinger
HSVE-027D	12/03/15	Zone 1	Rand	NA	NA	23.05	19.16	25.66		19.70												0		Viton Stinger
HSVE-027D	12/07/15	Zone 1	Rand	ND	Dry	26.50	19.16	25.66	6.50	19.70	3,490	1,840	13.6	2.60	1,650	6.00	18.2					0		Viton Stinger
HSVE-027D	12/21/15	Zone 1	Rand	ND	Dry	24.57	19.16	25.66	6.50													0		Viton Stinger
HSVE-027D	12/30/15	Zone 1	Rand	NA	10.76	26.09	19.16	25.66	-8.40	19.70												50		Viton Stinger
HSVE-027D	12/31/15	Zone 1	Rand	NA	NA	26.09	19.16	25.66		19.70												0		Viton Stinger
HSVE-027D	01/04/16	Zone 1	Rand	ND	19.00	26.10	19.16	25.66	-0.16													0		Viton Stinger
HSVE-027D	01/12/16	Zone 1	Rand	ND	22.05	26.14	19.16	25.66	2.89	19.70	180	24.9	19.3	0.30	155	0.00	7.00					0		Viton Stinger
HSVE-027D	01/15/16	Zone 1	Rand	NA	NA	26.14	19.16	25.66		19.70												16.7		Viton Stinger
HSVE-027D	01/19/16	Zone 1	Rand	ND	15.30	26.10	19.16	25.66	-3.86													16.7		Viton Stinger
HSVE-027D	01/21/16	Zone 1	Rand	NA	NA	26.10	19.16	25.66		19.70												0		Viton Stinger
HSVE-027D	01/25/16	Zone 1	Rand	ND	24.38	26.30	19.16	25.66	5.22													0		Viton Stinger
HSVE-027D	02/08/16	Zone 1	Rand	ND	Dry	26.00	19.16	25.66	6.50													0		Viton Stinger
HSVE-027D	02/22/16	Zone 1	Rand	ND	Dry	26.10	19.16	25.66	6.50	19.70	26.0	26.0	20.8	0.00	0.00	0.00	9.00					0		Viton Stinger
HSVE-027D	03/01/16	Zone 1	Rand	NA	NA	26.10	19.16	25.66		19.70												16.7		Viton Stinger
HSVE-027D	03/08/16	Zone 1	Rand	ND	24.35	26.14	19.16	25.66	5.19													16.7		Viton Stinger
HSVE-027D	03/14/16	Zone 1	Rand	NA	NA	26.14	19.16	25.66		19.70												33.3		Viton Stinger
HSVE-027D	03/21/16	Zone 1	Rand	ND	18.60	26.10	19.16	25.66	-0.56	19.70	116	84.6	20.8	0.00	31.4	0.00	20.0	3.62	0.06	118	61.0	33.3		Viton Stinger
HSVE-028D	02/08/16	Zone 5	Rand	ND	10.80	12.37	18.12	24.62	-7.32													0		None
HSVE-028S	10/06/15	Zone 5	N. Olive	ND	11.18	12.40	7.14	11.64	4.04													100		Viton Stinger
HSVE-028S	10/14/15	Zone 5	N. Olive	ND	11.16	12.38	7.14	11.64	4.02	10.00	365	36.4	20.5	0.20	329	0.00	10.0	29.5	4.27	136	63.0	100		Viton Stinger
HSVE-028S	10/27/15	Zone 5	N. Olive	ND	11.19	12.40	7.14	11.64	4.05													100		Viton Stinger
HSVE-028S	11/10/15	Zone 5	N. Olive	ND	9.70	12.37	7.14	11.64	2.56													100		Viton Stinger
HSVE-028S	11/12/15	Zone 5	N. Olive							10.00												100		Viton Stinger
HSVE-028S	11/18/15	Zone 5	N. Olive	ND	11.16	12.35	7.14	11.64	4.02	10.00	2,680	286	20.3	0.40	2,394	3.00	82.0	30.2	4.47	139	56.0	100		Viton Stinger
HSVE-028S	12/01/15	Zone 5	N. Olive	ND	11.17	12.35	7.14	11.64	4.03													100		Viton Stinger
HSVE-028S	12/09/15	Zone 5	N. Olive	ND	11.18	12.35	7.14	11.64	4.04	10.00	1,985	108	20.7	0.30	1,877	2.00	25.0	29.3	4.07	134	49.0	100		Viton Stinger
HSVE-028S	12/29/15	Zone 5	N. Olive	ND	10.76	12.30	7.14	11.64	3.62	10.00												100		Viton Stinger
HSVE-028S	12/29/15	Zone 5	N. Olive	NA	10.76	12.30	7.14	11.64	3.62	10.00												100		Viton Stinger
HSVE-028S	01/05/16	Zone 5	N. Olive	ND	10.73	15.84	7.14	11.64	3.59													100		Viton Stinger
HSVE-028S	01/13/16	Zone 5	N. Olive	ND	10.78	12.35	7.14	11.64	3.64	10.00	60.0	41.7	20.8	0.10	18.3	0.00	13.0	27.3	3.42	129	40.0	100		Viton Stinger
HSVE-028S	01/26/16	Zone 5	N. Olive	ND	11.12	15.82	7.14	11.64	3.98													100		Viton Stinger
HSVE-028S	02/23/16	Zone 5	N. Olive	ND	10.86	15.82	7.14	11.64	3.72	10.00	1,050	7.14	20.8	0.30	1,043	0.00	14.0	24.2	2.77	133	48.0	100		Viton Stinger
HSVE-028S	03/08/16	Zone 5	N. Olive	ND	10.90	12.34	7.14	11.64	3.76													100		Viton Stinger
HSVE-028S	03/22/16	Zone 5	N. Olive	ND	11.10	11.98	7.14	11.64	3.96	10.00	865	111	20.6	0.30	754	0.00	36.0	23.3	2.62	135	54.0	100		Viton Stinger

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-029D	10/06/15	Zone 5	Rand	ND	20.12	24.96	18.62	25.12	1.50													50		Viton Stinger
HSVE-029D	10/14/15	Zone 5	Rand	ND	20.08	25.05	18.62	25.12	1.46	19.20	30,000	11,000	14.1	6.10	19,000	20.0	110	6.55	0.21	134	65.0	50		Viton Stinger
HSVE-029D	11/10/15	Zone 5	Rand	ND	19.95	24.80	18.62	25.12	1.33													50		Viton Stinger
HSVE-029D	11/18/15	Zone 5	Rand	ND	20.16	24.80	18.62	25.12	1.54	19.20	71,000	28,746	16.5	4.00	42,254	52.0	359	3.47	0.06	141	61.0	50		Viton Stinger
HSVE-029D	11/23/15	Zone 5	Rand	ND	19.95	24.82	18.62	25.12	1.33													50		Viton Stinger
HSVE-029D	12/01/15	Zone 5	Rand	ND	20.00	24.85	18.62	25.12	1.38													50		Viton Stinger
HSVE-029D	12/09/15	Zone 5	Rand	ND	20.35	24.82	18.62	25.12	1.73	19.20	8,540	3,019	19.7	1.10	5,521	9.00	252	5.97	0.17	132	56.0	50		Viton Stinger
HSVE-029D	12/29/15	Zone 5	Rand	NA	19.66	24.85	18.62	25.12	1.04	19.20												50		Viton Stinger
HSVE-029D	01/05/16	Zone 5	Rand	ND	17.98	25.00	18.62	25.12	-0.64													50		Viton Stinger
HSVE-029D	01/13/16	Zone 5	Rand	ND	18.30	24.86	18.62	25.12	-0.32	19.20								0.00	0.00	128	38.0	50		Viton Stinger
HSVE-029D	01/26/16	Zone 5	Rand	ND	19.26	24.92	18.62	25.12	0.64													50		Viton Stinger
HSVE-029D	02/08/16	Zone 5	Rand	ND	18.85	24.70	18.62	25.12	0.23													50		Viton Stinger
HSVE-029D	02/23/16	Zone 5	Rand	ND	19.30	25.00	18.62	25.12	0.68	19.20	15,600	1,171	20.3	0.60	14,429	11.0	73.0	7.96	0.30	131	53.0	50		Viton Stinger
HSVE-029D	03/03/16	Zone 5	Rand							21.20												50		Viton Stinger
HSVE-029D	03/08/16	Zone 5	Rand	ND	21.39	25.00	18.62	25.12	2.77													50		Viton Stinger
HSVE-029D	03/14/16	Zone 5	Rand	NA	NA	25.00	18.62	25.12		21.20												83.3		Viton Stinger
HSVE-029D	03/22/16	Zone 5	Rand	ND	21.43	24.95	18.62	25.12	2.81	21.20	124,000	50,765	16.1	4.40	73,235	78.0	216	7.34	0.26	133	59.0	83.3		Viton Stinger
HSVE-029D	03/28/16	Zone 5	Rand	NA	NA	24.95	18.62	25.12		21.20												66.7		Viton Stinger
HSVE-029S	10/01/15	Zone 5	N. Olive	NA	NA	13.92	7.63	13.13														0		None
HSVE-029S	10/06/15	Zone 5	N. Olive	ND	Dry	13.90	7.63	13.13	5.50													0		None
HSVE-029S	10/14/15	Zone 5	N. Olive	ND	Dry	13.92	7.63	13.13	5.50		50.0	50.0	20.6	0.20	0.00	0.00	13.0					0		None
HSVE-029S	11/10/15	Zone 5	N. Olive	ND	Dry	13.90	7.63	13.13	5.50													0		None
HSVE-029S	11/18/15	Zone 5	N. Olive	ND	13.40	13.92	7.63	13.13	5.50		212	168	20.6	0.20	43.7	0.00	55.0					0		None
HSVE-029S	11/20/15	Zone 5	N. Olive	NA	NA	13.92	7.63	13.13														50		None
HSVE-029S	11/30/15	Zone 5	N. Olive	NA	NA	13.92	7.63	13.13														100		None
HSVE-029S	12/01/15	Zone 5	N. Olive	ND	12.88	13.90	7.63	13.13	5.25													100		None
HSVE-029S	12/09/15	Zone 5	N. Olive	ND	12.30	13.90	7.63	13.13	4.67		108	108	20.8	0.00	0.00	0.00	30.0		0.00	133		100		None
HSVE-029S	01/05/16	Zone 5	N. Olive	ND	5.40	13.80	7.63	13.13	-2.23													100		None
HSVE-029S	01/13/16	Zone 5	N. Olive	ND	6.52	13.88	7.63	13.13	-1.11									62.5	0.07	129	41.0	100		None
HSVE-029S	01/26/16	Zone 5	N. Olive	ND	5.95	13.88	7.63	13.13	-1.68													100		None
HSVE-029S	02/08/16	Zone 5	N. Olive	ND	10.20	13.90	7.63	13.13	2.57													100		None
HSVE-029S	02/23/16	Zone 5	N. Olive	ND	25.00	13.90	7.63	13.13	5.50		195	152	20.8	0.00	42.9	0.00	38.0	65.9	0.08	130	53.0	50		None
HSVE-029S	03/08/16	Zone 5	N. Olive	ND	11.55	13.90	7.63	13.13	3.92													50		None
HSVE-029S	03/22/16	Zone 5	N. Olive	ND	12.14	13.88	7.63	13.13	4.51		162	162	20.8	0.00	0.00	0.00	42.0	0.00	0.00	133	57.0	50		None
HSVE-031D	10/06/15	Zone 3	Main Silt	ND	Dry	23.76	14.07	23.56	9.49													100		None
HSVE-031D	10/13/15	Zone 3	Main Silt	ND	Dry	23.68	14.07	23.56	9.49		1,520	621	19.0	1.50	899	1.00	133	23.2	1.13	124	72.0	100		None
HSVE-031D	10/28/15	Zone 3	Main Silt	ND	Dry	23.70	14.07	23.56	9.49													100		None
HSVE-031D	11/11/15	Zone 3	Main Silt	ND	Dry	23.70	14.07	23.56	9.49													100		None
HSVE-031D	11/19/15	Zone 3	Main Silt	ND	Dry	23.70	14.07	23.56	9.49		1,460	1,320	18.2	2.00	140	0.00	278	26.3	1.44	132	55.0	100		None
HSVE-031D	12/02/15	Zone 3	Main Silt	ND	Dry	23.70	14.07	23.56	9.49													100		None
HSVE-031D	12/08/15	Zone 3	Main Silt	ND	Dry	23.68	14.07	23.56	9.49		855	794	18.4	1.90	60.6	0.00	160	22.4	1.00	120	52.0	100		None
HSVE-031D	01/05/16	Zone 3	Main Silt	ND	Dry	23.80	14.07	23.56	9.49													100		None
HSVE-031D	01/14/16	Zone 3	Main Silt	ND	19.00	23.75	14.07	23.56	4.93		18.0	18.0	20.8	0.00	0.00	0.00	6.00	16.1	0.49	114	37.0	100		None
HSVE-031D	01/26/16	Zone 3	Main Silt	ND	Dry	23.75	14.07	23.56	9.49													100		None
HSVE-031D	02/10/16	Zone 3	Main Silt	ND	Dry	23.78	14.07	23.56	9.49													100		None
HSVE-031D	02/25/16	Zone 3	Main Silt	ND	Dry	23.67	14.07	23.56	9.49		5,395	977	19.2	1.30	4,418	4.00	93.0	25.7	1.33	123	52.0	100		None
HSVE-031D	03/10/16	Zone 3	Main Silt	ND	Dry	23.65	14.07	23.56	9.49													100		None
HSVE-031D	03/24/16	Zone 3	Main Silt	ND	Dry	23.67	14.07	23.56	9.49		1,778	696	19.1	1.40	1,082	0.00	106	23.2	1.10	125	57.0	100		None
HSVE-033	10/01/15	Zone 3	Main Silt	NA	NA	21.66	13.61	21.09														0		None
HSVE-033	10/05/15	Zone 3	Main Silt	ND	21.22	21.66	13.61	21.09	7.48													0		None
HSVE-033	10/12/15	Zone 3	Main Silt	ND	Dry	21.56	13.61	21.09	7.48		0.00	0.00	17.0	2.50	0.00	0.00	0.00					0		None
HSVE-033	10/26/15	Zone 3	Main Silt	ND	21.10	21.58	13.61	21.09	7.48													0		None
HSVE-033	11/09/15	Zone 3	Main Silt	ND	21.05	21.57	13.61	21.09	7.44													0		None
HSVE-033	11/16/15	Zone 3	Main Silt	ND	Dry	21.60	13.61	21.09	7.48		569	401	13.4	5.50	168	0.00	10.8					0		None
HSVE-033	11/20/15	Zone 3	Main Silt	NA	NA	21.60	13.61	21.09														50		None
HSVE-033	11/30/15	Zone 3	Main Silt	NA	NA	21.60	13.61	21.09														100		None
HSVE-033	11/30/15	Zone 3	Main Silt	ND	16.64	21.65	13.61	21.09	3.03													100		None
HSVE-033	12/07/15	Zone 3	Main Silt	ND	16.50	21.50	13.61	21.09	2.89		5.00	5.00	19.8	1.20	0.00	0.00	2.00	10.9	0.21	89.0	49.0	100		None

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-033	12/07/15	Zone 3	Main Silt	ND	16.50	21.50	13.61	21.09	2.89		5.00	5.00	19.8	1.20	0.00	0.00	2.00	10.9	0.21	89.0	49.0	100		None
HSVE-033	01/04/16	Zone 3	Main Silt	ND	14.08	21.65	13.61	21.09	0.47													100		None
HSVE-033	01/11/16	Zone 3	Main Silt	ND	13.88	21.60	13.61	21.09	0.27		0.00	0.00	20.8	0.00	0.00	0.00	0.00	18.8	0.67	117	35.0	100		None
HSVE-033	01/25/16	Zone 3	Main Silt	ND	13.10	21.66	13.61	21.09	-0.51													100		None
HSVE-033	02/08/16	Zone 3	Main Silt	ND	14.40	21.55	13.61	21.09	0.79													100		None
HSVE-033	02/23/16	Zone 3	Main Silt	ND	15.32	21.42	13.61	21.09	1.71		10.0	10.0	20.6	0.50	0.00	0.00	4.00	10.7	0.19	70.0	43.0	100		None
HSVE-033	03/09/16	Zone 3	Main Silt	ND	15.80	21.53	13.61	21.09	2.19													100		None
HSVE-033	03/21/16	Zone 3	Main Silt	ND	17.19	26.62	13.61	21.09	3.58		0.00	0.00	20.4	0.50	0.00	0.00	0.00	12.7	0.27	77.0	39.0	100		None
HSVE-034	10/01/15	Zone 3	Main Silt	NA	NA	15.62	12.44	21.95														0		None
HSVE-034	10/05/15	Zone 3	Main Silt	ND	Dry	15.70	12.44	21.95	9.51													0		None
HSVE-034	10/13/15	Zone 3	Main Silt	ND	Dry	14.50	12.44	21.95	9.51		120	120	19.2	0.70	0.00	0.00	25.0					0		None
HSVE-034	10/19/15	Zone 3	Main Silt	NA	NA	14.50	12.44	21.95														100		None
HSVE-034	10/26/15	Zone 3	Main Silt	ND	Dry	10.45	12.44	21.95	9.51													100		None
HSVE-034	11/09/15	Zone 3	Main Silt	ND	Dry	12.50	12.44	21.95	9.51													100		None
HSVE-034	11/16/15	Zone 3	Main Silt	ND	15.00	15.54	12.44	21.95	2.56		210	210	20.3	0.50	0.00	0.00	45.0	138	37.0	115	51.0	100		None
HSVE-034	11/30/15	Zone 3	Main Silt	ND	13.90	15.20	12.44	21.95	1.46													100		None
HSVE-034	12/07/15	Zone 3	Main Silt	ND	Dry	15.20	12.44	21.95	9.51		6.00	6.00	20.7	0.30	0.00	0.00	2.00	15.4	0.44	99.0	51.0	100		None
HSVE-034	01/04/16	Zone 3	Main Silt	ND	Dry	15.36	12.44	21.95	9.51													100		None
HSVE-034	01/11/16	Zone 3	Main Silt	ND	Dry	15.33	12.44	21.95	9.51		0.00	0.00	20.6	0.30	0.00	0.00	0.00	27.1	1.46	126	41.0	100		None
HSVE-034	01/25/16	Zone 3	Main Silt	ND	Dry	15.35	12.44	21.95	9.51													100		None
HSVE-034	02/08/16	Zone 3	Main Silt	ND	Dry	15.35	12.44	21.95	9.51													100		None
HSVE-034	02/23/16	Zone 3	Main Silt	ND	13.40	14.95	12.44	21.95	0.96		23.0	23.0	20.7	0.10	0.00	0.00	6.00	46.0	3.62	74.0	50.0	100		None
HSVE-034	03/21/16	Zone 3	Main Silt	ND	Dry	15.30	12.44	21.95	9.51		0.00	0.00	20.7	0.10	0.00	0.00	0.00	42.7	3.15	80.0	46.0	100		None
HSVE-035	10/01/15	Zone 2	Main Silt	NA	NA	25.87	15.52	25.13														0		None
HSVE-035	10/05/15	Zone 2	Main Silt	ND	23.42	25.88	15.52	25.13	7.90													0		None
HSVE-035	10/12/15	Zone 2	Main Silt	ND	23.92	25.70	15.52	25.13	8.40		0.00	0.00	14.1	2.10	0.00	0.00	0.00					0		None
HSVE-035	10/26/15	Zone 2	Main Silt	ND	25.00	25.67	15.52	25.13	9.48													0		None
HSVE-035	11/10/15	Zone 2	Main Silt	ND	25.35	25.70	15.52	25.13	9.61													0		None
HSVE-035	11/17/15	Zone 2	Main Silt	ND	23.40	25.88	15.52	25.13	7.88		470	470	12.4	2.50	0.00	0.00	15.0					0		None
HSVE-035	11/20/15	Zone 2	Main Silt	NA	NA	25.88	15.52	25.13														50		None
HSVE-035	11/30/15	Zone 2	Main Silt	NA	NA	25.88	15.52	25.13														100		None
HSVE-035	11/30/15	Zone 2	Main Silt	ND	18.05	25.88	15.52	25.13	2.53													100		None
HSVE-035	12/07/15	Zone 2	Main Silt	ND	18.30	25.40	15.52	25.13	2.78		75.0	67.9	18.9	2.00	7.14	0.00	10.0	15.6	0.43	85.0	49.0	100		None
HSVE-035	01/04/16	Zone 2	Main Silt	ND	14.00	25.74	15.52	25.13	-1.52													100		None
HSVE-035	01/14/16	Zone 2	Main Silt	ND	13.90	25.85	15.52	25.13	-1.62									0.00	0.00	93.0	35.0	100		None
HSVE-035	01/25/16	Zone 2	Main Silt	ND	16.52	25.75	15.52	25.13	1.00													100		None
HSVE-035	02/08/16	Zone 2	Main Silt	ND	17.95	25.70	15.52	25.13	2.43													100		None
HSVE-035	02/22/16	Zone 2	Main Silt	ND	18.35	25.70	15.52	25.13	2.83		890	105	20.4	0.40	785	0.00	26.0	12.7	0.26	58.0	43.0	100		None
HSVE-035	03/09/16	Zone 2	Main Silt	ND	18.00	25.75	15.52	25.13	2.48													100		None
HSVE-035	03/21/16	Zone 2	Main Silt	ND	17.25	25.75	15.52	25.13	1.73		8.00	8.00	19.3	1.40	0.00	0.00	4.00	13.4	0.31	80.0	43.0	100		None
HSVE-036	10/05/15	Zone 2	Main Silt	ND	17.16	23.56	12.15	24.68	5.01													100		Viton Stinger
HSVE-036	10/12/15	Zone 2	Main Silt	ND	18.35	23.70	12.15	24.68	6.20	16.00	2,500	556	20.3	0.50	1,944	1.00	53.0	20.8	0.85	110	65.0	100		Viton Stinger
HSVE-036	10/26/15	Zone 2	Main Silt	ND	18.10	23.75	12.15	24.68	5.95													100		Viton Stinger
HSVE-036	11/10/15	Zone 2	Main Silt	ND	18.20	23.80	12.15	24.68	6.05													100		Viton Stinger
HSVE-036	11/17/15	Zone 2	Main Silt	ND	17.79	23.79	12.15	24.68	5.64	16.00	1,200	771	20.2	0.60	429	0.00	104	21.7	0.90	107	56.0	100		Viton Stinger
HSVE-036	11/30/15	Zone 2	Main Silt	ND	17.84	23.86	12.15	24.68	5.69													100		Viton Stinger
HSVE-036	12/07/15	Zone 2	Main Silt	ND	17.97	23.80	12.15	24.68	5.82	16.00	345	306	20.5	0.40	38.6	0.00	50.0	21.4	0.86	104	53.0	100		Viton Stinger
HSVE-036	12/29/15	Zone 2	Main Silt	NA	NA	23.80	12.15	24.68		16.00												0		Viton Stinger
HSVE-036	12/30/15	Zone 2	Main Silt	NA	19.07	23.78	12.15	24.68	6.92	16.00												0		Viton Stinger
HSVE-036	01/04/16	Zone 2	Main Silt	ND	16.95	23.82	12.15	24.68	4.80													0		Viton Stinger
HSVE-036	01/11/16	Zone 2	Main Silt	ND	16.90	23.80	12.15	24.68	4.75	16.00	49,100	9,663	16.3	1.40	39,437	47.0	57.0					0		Viton Stinger
HSVE-036	01/15/16	Zone 2	Main Silt	NA	NA	23.80	12.15	24.68		16.00												16.7		Viton Stinger
HSVE-036	01/19/16	Zone 2	Main Silt	ND	17.00	23.80	12.15	24.68	4.85													16.7		Viton Stinger
HSVE-036	01/22/16	Zone 2	Main Silt	NA	NA	23.80	12.15	24.68		16.00												33.3		Viton Stinger
HSVE-036	01/25/16	Zone 2	Main Silt	ND	16.32	23.60	12.15	24.68	4.17													33.3		Viton Stinger
HSVE-036	02/08/16	Zone 2	Main Silt	ND	16.65	23.50	12.15	24.68	4.50													33.3		Viton Stinger
HSVE-036	02/12/16	Zone 2	Main Silt	NA	NA	23.50	12.15	24.68		16.00												66.7		Viton Stinger
HSVE-036	02/22/16	Zone 2	Main Silt	ND	16.23	24.41	12.15	24.68	4.08	16.00	0.00	0.00	20.3	0.60	0.00	0.00	0.00	17.6	0.55	92.0	44.0	66.7		Viton Stinger

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-036	03/09/16	Zone 2	Main Silt	ND	16.42	23.40	12.15	24.68	4.27													66.7		Viton Stinger
HSVE-036	03/14/16	Zone 2	Main Silt	NA	NA	23.40	12.15	24.68		16.00												100		Viton Stinger
HSVE-036	03/21/16	Zone 2	Main Silt	ND	17.00	23.80	12.15	24.68	4.85	16.00	2,840	826	20.5	0.40	2,014	3.00	57.0	14.3	0.39	109	48.0	100		Viton Stinger
HSVE-037	10/05/15	Zone 2	Main Silt	ND	12.20	22.90	12.81	22.32	-0.61													100		None
HSVE-037	10/12/15	Zone 2	Main Silt	ND	18.20	22.87	12.81	22.32	5.39		1,400	379	20.4	0.40	1,021	0.00	52.0	25.2	1.26	111	66.0	100		None
HSVE-037	10/15/15	Zone 2	Main Silt	NA	NA	22.87	12.81	22.32														50		None
HSVE-037	10/19/15	Zone 2	Main Silt	NA	NA	22.87	12.81	22.32														100		None
HSVE-037	10/26/15	Zone 2	Main Silt	ND	17.10	22.98	12.81	22.32	4.29													100		None
HSVE-037	11/10/15	Zone 2	Main Silt	ND	Dry	22.90	12.81	22.32	9.51													100		None
HSVE-037	11/16/15	Zone 2	Main Silt	ND	15.00	22.88	12.81	22.32	2.19		645	524	20.4	0.50	121	0.00	99.0	27.8	1.48	106	58.0	100		None
HSVE-037	11/30/15	Zone 2	Main Silt	ND	12.00	22.76	12.81	22.32	-0.81													100		None
HSVE-037	12/03/15	Zone 2	Main Silt	NA	NA	22.76	12.81	22.32														50		None
HSVE-037	12/07/15	Zone 2	Main Silt	ND	20.20	22.70	12.81	22.32	7.39		675	542	20.0	0.80	133	0.00	115	32.8	1.99	96.0	56.0	50		None
HSVE-037	12/14/15	Zone 2	Main Silt	NA	NA	22.70	12.81	22.32														100		None
HSVE-037	12/21/15	Zone 2	Main Silt	ND	Dry	22.85	12.81	22.32	9.51													100		None
HSVE-037	01/04/16	Zone 2	Main Silt	ND	17.86	22.35	12.81	22.32	5.05													100		None
HSVE-037	01/11/16	Zone 2	Main Silt	ND	17.80	22.35	12.81	22.32	4.99		62.0	56.4	20.5	0.10	5.63	0.00	15.0	16.6	0.51	108	39.0	100		None
HSVE-037	01/25/16	Zone 2	Main Silt	ND	16.25	22.36	12.81	22.32	3.44													100		None
HSVE-037	02/08/16	Zone 2	Main Silt	ND	15.70	22.35	12.81	22.32	2.89													100		None
HSVE-037	02/22/16	Zone 2	Main Silt	ND	19.55	22.32	12.81	22.32	6.74		1,130	248	20.7	0.30	882	0.00	20.0	22.5	0.94	102	50.0	100		None
HSVE-037	03/09/16	Zone 2	Main Silt	ND	11.60	22.42	12.81	22.32	-1.21													100		None
HSVE-037	03/21/16	Zone 2	Main Silt	ND	19.68	22.30	12.81	22.32	6.87		2,715	782	20.4	0.60	1,933	0.00	85.0	26.5	1.34	109	50.0	100		None
HSVE-038	10/06/15	Zone 2	Main Silt	ND	Dry	23.30	12.18	21.70	9.52													100		None
HSVE-038	10/13/15	Zone 2	Main Silt	ND	Dry	23.12	12.18	21.70	9.52		2,130	884	19.4	1.20	1,246	1.00	160	9.22	0.17	112	69.0	100		None
HSVE-038	10/28/15	Zone 2	Main Silt	ND	Dry	23.30	12.18	21.70	9.52													100		None
HSVE-038	11/11/15	Zone 2	Main Silt	ND	Dry	23.27	12.18	21.70	9.52													100		None
HSVE-038	11/19/15	Zone 2	Main Silt	ND	Dry	23.05	12.18	21.70	9.52		1,627	1,331	19.4	1.10	296	0.00	220	11.4	0.26	118	59.0	100		None
HSVE-038	12/02/15	Zone 2	Main Silt	ND	Dry	23.70	12.18	21.70	9.52													100		None
HSVE-038	12/08/15	Zone 2	Main Silt	ND	Dry	23.20	12.18	21.70	9.52		1,370	1,290	19.6	1.10	80.3	0.00	205	9.56	0.18	113	60.0	100		None
HSVE-038	01/05/16	Zone 2	Main Silt	ND	Dry	23.28	12.18	21.70	9.52													100		None
HSVE-038	01/14/16	Zone 2	Main Silt	ND	15.60	23.30	12.18	21.70	3.42		18.0	18.0	20.8	0.00	0.00	0.00	6.00	0.00	0.00	98.0	42.0	100		None
HSVE-038	01/26/16	Zone 2	Main Silt	ND	Dry	23.35	12.18	21.70	9.52													100		None
HSVE-038	02/10/16	Zone 2	Main Silt	ND	Dry	23.36	12.18	21.70	9.52													100		None
HSVE-038	02/25/16	Zone 2	Main Silt	ND	Dry	23.28	12.18	21.70	9.52		1,047	453	20.00	0.80	594	0.00	96.0	11.2	0.24	109	53.0	100		None
HSVE-038	03/10/16	Zone 2	Main Silt	ND	Dry	23.27	12.18	21.70	9.52													100		None
HSVE-038	03/24/16	Zone 2	Main Silt	ND	Dry	23.26	12.18	21.70	9.52		2,490	1,044	19.4	1.10	1,446	4.00	164	11.0	0.24	115	59.0	100		None
HSVE-039	10/05/15	Zone 2	Main Silt	ND	Dry	23.52	14.13	23.65	9.52													0		Viton Stinger
HSVE-039	10/12/15	Zone 2	Main Silt	ND	Dry	23.50	14.13	23.65	9.52	14.60	103	103	11.5	3.10	0.00	0.00	1.80					0		Viton Stinger
HSVE-039	10/15/15	Zone 2	Main Silt	NA	NA	23.50	14.13	23.65	9.52	14.60												0		Viton Stinger
HSVE-039	10/26/15	Zone 2	Main Silt	ND	Dry	23.00	14.13	23.65	9.52													0		Viton Stinger
HSVE-039	11/03/15	Zone 2	Main Silt	NA	NA	23.00	14.13	23.65		14.60												100		Viton Stinger
HSVE-039	11/09/15	Zone 2	Main Silt	ND	18.24	23.65	14.13	23.65	4.11													100		Viton Stinger
HSVE-039	11/16/15	Zone 2	Main Silt	ND	Dry	23.62	14.13	23.65	9.52	14.60	1,130	516	16.2	3.30	614	0.00	124					0		Viton Stinger
HSVE-039	11/20/15	Zone 2	Main Silt	NA	NA	23.62	14.13	23.65		14.60												50		Viton Stinger
HSVE-039	11/30/15	Zone 2	Main Silt	NA	NA	23.62	14.13	23.65		14.60												100		Viton Stinger
HSVE-039	11/30/15	Zone 2	Main Silt	ND	17.55	23.66	14.13	23.65	3.42	14.60												100		Viton Stinger
HSVE-039	12/07/15	Zone 2	Main Silt	ND	17.46	23.68	14.13	23.65	3.33	14.60	638	502	19.6	1.40	136	0.00	81.0	36.9	2.51	96.0	54.0	100		Viton Stinger
HSVE-039	12/29/15	Zone 2	Main Silt	NA	NA	23.68	14.13	23.65		14.60												0		Viton Stinger
HSVE-039	01/04/16	Zone 2	Main Silt	ND	16.52	23.53	14.13	23.65	2.39													0		Viton Stinger
HSVE-039	01/11/16	Zone 2	Main Silt	ND	16.50	23.30	14.13	23.65	2.37	14.60	10.0	10.0	20.3	0.30	0.00	0.00	1.00					0		Viton Stinger
HSVE-039	01/25/16	Zone 2	Main Silt	ND	16.86	23.50	14.13	23.65	2.73													0		Viton Stinger
HSVE-039	02/08/16	Zone 2	Main Silt	ND	21.92	23.62	14.13	23.65	7.79													0		Viton Stinger
HSVE-039	02/12/16	Zone 2	Main Silt	NA	NA	23.62	14.13	23.65		14.60												66.7		Viton Stinger
HSVE-039	02/22/16	Zone 2	Main Silt	ND	17.06	23.60	14.13	23.65	2.93	14.60	7.00	7.00	19.0	1.90	0.00	0.00	2.00	28.7	1.48	89.0	52.0	66.7		Viton Stinger
HSVE-039	03/09/16	Zone 2	Main Silt	ND	17.10	23.68	14.13	23.65	2.97													66.7		Viton Stinger
HSVE-039	03/21/16	Zone 2	Main Silt	ND	18.10	23.50	14.13	23.65	3.97	14.60	14.0	11.1	18.8	1.90	2.86	0.00	2.00	29.3	1.58	96.0	52.0	100		Viton Stinger
HSVE-040	10/05/15	Zone 2	Main Silt	ND	20.70	24.80	14.69	24.19	6.01													100		Viton Stinger
HSVE-040	10/12/15	Zone 2	Main Silt	ND	20.78	24.75	14.69	24.19	6.09	16.30	1,550	1,161	19.0	1.60	389	1.00	188	31.1	1.96	114	73.0	100		Viton Stinger

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-040	10/20/15	Zone 2	Main Silt							19.75												100		Viton Stinger
HSVE-040	10/26/15	Zone 2	Main Silt	ND	21.92	24.65	14.69	24.19	7.23													100		Viton Stinger
HSVE-040	11/09/15	Zone 2	Main Silt	ND	21.48	24.73	14.69	24.19	6.79													100		Viton Stinger
HSVE-040	11/17/15	Zone 2	Main Silt	ND	21.10	24.80	14.69	24.19	6.41	19.75	1,185	968	20.3	0.40	217	0.00	137	36.7	2.67	112	66.0	100		Viton Stinger
HSVE-040	11/30/15	Zone 2	Main Silt	ND	21.52	24.75	14.69	24.19	6.83													100		Viton Stinger
HSVE-040	12/07/15	Zone 2	Main Silt	ND	21.65	24.65	14.69	24.19	6.96	19.75	1,843	1,803	18.4	1.70	40.0	1.00	310	32.5	2.09	110	66.0	100		Viton Stinger
HSVE-040	12/29/15	Zone 2	Main Silt	NA	21.14	24.75	14.69	24.19	6.45	19.75												100		Viton Stinger
HSVE-040	01/04/16	Zone 2	Main Silt	ND	18.15	24.76	14.69	24.19	3.46													100		Viton Stinger
HSVE-040	01/11/16	Zone 2	Main Silt	ND	18.11	24.50	14.69	24.19	3.42	19.75	13.0	13.0	4.80	3.70	0.00	0.00	0.20	13.2	0.33	111	43.0	100		Viton Stinger
HSVE-040	01/25/16	Zone 2	Main Silt	ND	19.18	24.77	14.69	24.19	4.49													100		Viton Stinger
HSVE-040	02/08/16	Zone 2	Main Silt	ND	18.20	24.75	14.69	24.19	3.51													100		Viton Stinger
HSVE-040	02/22/16	Zone 2	Main Silt	ND	21.63	24.85	14.69	24.19	6.94	19.75	800	557	19.5	1.30	243	0.00	106	27.1	1.39	103	57.0	100		Viton Stinger
HSVE-040	03/09/16	Zone 2	Main Silt	ND	15.90	24.74	14.69	24.19	1.21													100		Viton Stinger
HSVE-040	03/21/16	Zone 2	Main Silt	ND	18.46	24.75	14.69	24.19	3.77	19.75	885	728	19.5	1.20	157	0.00	140	30.4	1.79	114	51.0	100		Viton Stinger
HSVE-041	10/01/15	Zone 2	Main Silt	NA	NA	23.23	14.86	23.43		20.00												0		Viton Stinger
HSVE-041	10/05/15	Zone 2	Main Silt	ND	Dry	23.30	14.86	23.43	8.57													0		Viton Stinger
HSVE-041	10/12/15	Zone 2	Main Silt	ND	Dry	23.24	14.86	23.43	8.57	20.00	270	270	20.7	0.30	0.00	0.00	51.0					0		Viton Stinger
HSVE-041	10/19/15	Zone 2	Main Silt	NA	NA	23.24	14.86	23.43		20.00												100		Viton Stinger
HSVE-041	10/26/15	Zone 2	Main Silt	ND	Dry	23.20	14.86	23.43	8.57													100		Viton Stinger
HSVE-041	11/09/15	Zone 2	Main Silt	ND	Dry	23.22	14.86	23.43	8.57													100		Viton Stinger
HSVE-041	11/17/15	Zone 2	Main Silt	ND	Dry	23.20	14.86	23.43	8.57	20.00	131	131	20.7	0.10	0.00	0.00	30.0	0.00	0.00	121	55.0	100		Viton Stinger
HSVE-041	11/30/15	Zone 2	Main Silt	ND	Dry	23.25	14.86	23.43	8.57													100		Viton Stinger
HSVE-041	12/07/15	Zone 2	Main Silt	ND	Dry	23.20	14.86	23.43	8.57	20.00	4,800	4,719	18.0	2.80	81.4	4.00	468	0.00	0.00	121	46.0	100		Viton Stinger
HSVE-041	01/04/16	Zone 2	Main Silt	ND	Dry	23.30	14.86	23.43	8.57													100		Viton Stinger
HSVE-041	01/11/16	Zone 2	Main Silt	ND	Dry	23.30	14.86	23.43	8.57	20.00	640	634	20.4	0.40	5.63	0.00	127	11.5	0.26	127	33.0	100		Viton Stinger
HSVE-041	01/25/16	Zone 2	Main Silt	ND	Dry	23.27	14.86	23.43	8.57													100		Viton Stinger
HSVE-041	02/08/16	Zone 2	Main Silt	ND	Dry	23.25	14.86	23.43	8.57													100		Viton Stinger
HSVE-041	02/22/16	Zone 2	Main Silt	ND	Dry	23.30	14.86	23.43	8.57	20.00	55.0	55.0	20.8	0.00	0.00	0.00	17.0	5.12	0.05	113	43.0	100		Viton Stinger
HSVE-041	03/09/16	Zone 2	Main Silt	ND	Dry	23.30	14.86	23.43	8.57													100		Viton Stinger
HSVE-041	03/21/16	Zone 2	Main Silt	ND	Dry	23.28	14.86	23.43	8.57	20.00	192	192	20.8	0.00	0.00	0.00	62.0	0.00	0.00	121	45.0	100		Viton Stinger
HSVE-042	10/05/15	Zone 2	Main Silt	ND	21.95	25.22	16.47	25.00	5.48													100		Viton Stinger
HSVE-042	10/12/15	Zone 2	Main Silt	ND	21.83	25.23	16.47	25.00	5.36	20.50	1,700	1,492	20.3	0.80	208	1.00	225	13.0	0.35	125	66.0	100		Viton Stinger
HSVE-042	10/26/15	Zone 2	Main Silt	ND	23.10	25.45	16.47	25.00	6.63													100		Viton Stinger
HSVE-042	11/09/15	Zone 2	Main Silt	ND	21.63	25.40	16.47	25.00	5.16													100		Viton Stinger
HSVE-042	11/17/15	Zone 2	Main Silt	ND	21.97	25.26	16.47	25.00	5.50	20.50	2,730	2,561	19.9	0.90	169	1.00	317	13.5	0.37	122	58.0	100		Viton Stinger
HSVE-042	11/30/15	Zone 2	Main Silt	ND	21.82	25.24	16.47	25.00	5.35													100		Viton Stinger
HSVE-042	12/07/15	Zone 2	Main Silt	ND	Dry	24.90	16.47	25.00	8.53	20.50	4,540	4,097	20.5	0.50	443	4.00	508	12.7	0.32	121	46.0	100		Viton Stinger
HSVE-042	01/04/16	Zone 2	Main Silt	ND	20.78	24.95	16.47	25.00	4.31													100		Viton Stinger
HSVE-042	01/11/16	Zone 2	Main Silt	ND	20.70	24.95	16.47	25.00	4.23	20.50	9,340	9,206	19.5	0.90	134	6.00	788	30.1	1.82	129	41.0	100		Viton Stinger
HSVE-042	01/25/16	Zone 2	Main Silt	ND	21.00	25.05	16.47	25.00	4.53													100		Viton Stinger
HSVE-042	02/08/16	Zone 2	Main Silt	ND	21.00	24.93	16.47	25.00	4.53													100		Viton Stinger
HSVE-042	02/22/16	Zone 2	Main Silt	ND	21.00	24.92	16.47	25.00	4.53	20.50	3,150	2,951	20.1	0.80	199	2.00	430	9.57	0.18	118	50.0	100		Viton Stinger
HSVE-042	03/09/16	Zone 2	Main Silt	ND	21.11	24.95	16.47	25.00	4.64													100		Viton Stinger
HSVE-042	03/21/16	Zone 2	Main Silt	ND	20.80	24.95	16.47	25.00	4.33	20.50	8,215	7,262	19.9	1.00	953	7.00	589	11.0	0.24	121	49.0	100		Viton Stinger
HSVE-043	10/01/15	Zone 2	Rand	NA	NA	22.74	17.31	21.79														0		None
HSVE-043	10/06/15	Zone 2	Rand	ND	21.62	22.75	17.31	21.79	4.31													0		None
HSVE-043	10/13/15	Zone 2	Rand	ND	21.74	22.75	17.31	21.79	4.43		22.0	22.0	16.2	1.80	0.00	0.00	5.00					0		None
HSVE-043	10/28/15	Zone 2	Rand	ND	21.88	22.72	17.31	21.79	4.48													0		None
HSVE-043	11/11/15	Zone 2	Rand	ND	22.00	22.72	17.31	21.79	4.48													0		None
HSVE-043	11/19/15	Zone 2	Rand	ND	21.36	22.55	17.31	21.79	4.05		53.0	53.0	12.0	2.10	0.00	0.00	1.70					0		None
HSVE-043	11/30/15	Zone 2	Rand	NA	NA	22.55	17.31	21.79														50		None
HSVE-043	12/02/15	Zone 2	Rand	ND	15.66	22.75	17.31	21.79	-1.65													50		None
HSVE-043	12/03/15	Zone 2	Rand	NA	NA	22.75	17.31	21.79														0		None
HSVE-043	12/08/15	Zone 2	Rand	ND	20.35	22.70	17.31	21.79	3.04		20.0	20.0	19.2	1.60	0.00	0.00	5.00					0		None
HSVE-043	01/05/16	Zone 2	Rand	ND	13.18	22.70	17.31	21.79	-4.13													0		None
HSVE-043	01/14/16	Zone 2	Rand	ND	14.33	22.75	17.31	21.79	-2.98													0		None
HSVE-043	01/26/16	Zone 2	Rand	ND	17.20	22.73	17.31	21.79	-0.11													0		None
HSVE-043	02/10/16	Zone 2	Rand	ND	19.18	22.48	17.31	21.79	1.87													0		None

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-043	02/25/16	Zone 2	Rand	ND	20.30	22.70	17.31	21.79	2.99		18.0	18.0	20.8	0.00	0.00	0.00	5.00					0		None
HSVE-043	03/01/16	Zone 2	Rand	NA	NA	22.70	17.31	21.79														16.7		None
HSVE-043	03/10/16	Zone 2	Rand	ND	15.65	22.66	17.31	21.79	-1.66													16.7		None
HSVE-043	03/24/16	Zone 2	Rand	ND	16.65	22.65	17.31	21.79	-0.66									5.19	0.05	96.0	58.0	33.3		None
HSVE-044	10/06/15	Zone 2	Rand	ND	17.84	23.65	19.00	22.51	-1.16													0		None
HSVE-044	10/13/15	Zone 2	Rand	ND	18.10	23.64	19.00	22.51	-0.90													0		None
HSVE-044	10/28/15	Zone 2	Rand	ND	18.30	23.60	19.00	22.51	-0.70													0		None
HSVE-044	11/11/15	Zone 2	Rand	ND	18.33	23.58	19.00	22.51	-0.67													0		None
HSVE-044	11/19/15	Zone 2	Rand	ND	16.96	23.55	19.00	22.51	-2.04													0		None
HSVE-044	12/02/15	Zone 2	Rand	ND	16.60	23.60	19.00	22.51	-2.40													0		None
HSVE-044	12/08/15	Zone 2	Rand	ND	16.72	23.60	19.00	22.51	-2.28													0		None
HSVE-044	01/05/16	Zone 2	Rand	ND	11.98	23.65	19.00	22.51	-7.02													0		None
HSVE-044	01/14/16	Zone 2	Rand	ND	12.48	23.67	19.00	22.51	-6.52													0		None
HSVE-044	01/26/16	Zone 2	Rand	ND	14.15	23.57	19.00	22.51	-4.85													0		None
HSVE-044	02/10/16	Zone 2	Rand	ND	15.94	23.60	19.00	22.51	-3.06													0		None
HSVE-044	02/25/16	Zone 2	Rand	ND	17.30	23.65	19.00	22.51	-1.70													0		None
HSVE-044	03/10/16	Zone 2	Rand	ND	17.60	21.61	19.00	22.51	-1.40													0		None
HSVE-044	03/24/16	Zone 2	Rand	ND	17.70	23.65	19.00	22.51	-1.30													0		None
HSVE-045	10/05/15	Zone 2	Rand	ND	20.08	24.70	19.19	23.67	0.89													0	0	Straw Stinger
HSVE-045	10/12/15	Zone 2	Rand	ND	19.32	22.58	19.19	23.67	0.13													0	0	Straw Stinger
HSVE-045	10/26/15	Zone 2	Rand	ND	20.38	24.77	19.19	23.67	1.19													0		Straw Stinger
HSVE-045	11/09/15	Zone 2	Rand	ND	20.42	24.70	19.19	23.67	1.23													0		Straw Stinger
HSVE-045	11/16/15	Zone 2	Rand	ND	20.35	24.70	19.19	23.67	1.16		162	162	19.8	0.60	0.00	0.00	36.0					0		Straw Stinger
HSVE-045	11/30/15	Zone 2	Rand	ND	18.36	24.62	19.19	23.67	-0.83													0		Straw Stinger
HSVE-045	12/07/15	Zone 2	Rand	ND	18.66	24.66	19.19	23.67	-0.53													0		Straw Stinger
HSVE-045	01/04/16	Zone 2	Rand	ND	19.20	24.65	19.19	23.67	0.01													0		Straw Stinger
HSVE-045	01/11/16	Zone 2	Rand	ND	15.08	24.65	19.19	23.67	-4.11													0		Straw Stinger
HSVE-045	01/25/16	Zone 2	Rand	ND	16.60	24.72	19.19	23.67	-2.59													0		Straw Stinger
HSVE-045	02/08/16	Zone 2	Rand	ND	18.05	24.50	19.19	23.67	-1.14													0		Straw Stinger
HSVE-045	02/22/16	Zone 2	Rand	ND	18.09	24.62	19.19	23.67	-1.10													0		Straw Stinger
HSVE-045	03/09/16	Zone 2	Rand	ND	19.50	24.65	19.19	23.67	0.31													0		Straw Stinger
HSVE-045	03/21/16	Zone 2	Rand	ND	19.07	24.65	19.19	23.67	-0.12													0		Straw Stinger
HSVE-047	10/01/15	Zone 2	Rand	NA	NA	1047.00	16.19	20.68		16.70												0		Viton Stinger
HSVE-047	10/05/15	Zone 2	Rand	ND	20.82	21.24	16.19	20.68	4.49													0		Viton Stinger
HSVE-047	10/12/15	Zone 2	Rand	ND	20.82	21.22	16.19	20.68	4.49	16.70	800	536	16.7	1.20	264	0.00	88.0					0		Viton Stinger
HSVE-047	10/20/15	Zone 2	Rand	NA	NA	21.22	16.19	20.68		16.70												50		Viton Stinger
HSVE-047	10/26/15	Zone 2	Rand	ND	20.50	21.28	16.19	20.68	4.31													50		Viton Stinger
HSVE-047	11/03/15	Zone 2	Rand	NA	NA	21.28	16.19	20.68		19.40												100		Viton Stinger
HSVE-047	11/09/15	Zone 2	Rand	ND	19.62	21.22	16.19	20.68	3.43													100		Viton Stinger
HSVE-047	11/12/15	Zone 2	Rand							18.50												100		Viton Stinger
HSVE-047	11/17/15	Zone 2	Rand	ND	19.20	21.25	16.19	20.68	3.01	18.50	106	87.4	20.5	0.50	18.6	0.00	15.0	41.6	3.52	125	55.0	100		Viton Stinger
HSVE-047	12/01/15	Zone 2	Rand	ND	19.14	21.25	16.19	20.68	2.95													100		Viton Stinger
HSVE-047	12/07/15	Zone 2	Rand	ND	19.15	21.20	16.19	20.68	2.96	18.50	1,712	1,218	20.2	0.60	494	0.00	171	16.5	0.54	121	49.0	100		Viton Stinger
HSVE-047	12/29/15	Zone 2	Rand	NA	9.52	21.20	16.19	20.68	-6.67	18.50												0		Viton Stinger
HSVE-047	01/04/16	Zone 2	Rand	ND	15.35	21.22	16.19	20.68	-0.84													0		Viton Stinger
HSVE-047	01/11/16	Zone 2	Rand	ND	18.20	21.24	16.19	20.68	2.01	18.50	390	390	11.9	2.90	0.00	0.00	5.00					0		Viton Stinger
HSVE-047	01/15/16	Zone 2	Rand	NA	NA	21.24	16.19	20.68		18.50												16.7		Viton Stinger
HSVE-047	01/19/16	Zone 2	Rand	ND	18.45	21.21	16.19	20.68	2.26													16.7		Viton Stinger
HSVE-047	01/22/16	Zone 2	Rand	NA	NA	21.21	16.19	20.68		18.50												33.3		Viton Stinger
HSVE-047	01/25/16	Zone 2	Rand	ND	18.76	21.22	16.19	20.68	2.57													33.3		Viton Stinger
HSVE-047	02/08/16	Zone 2	Rand	ND	18.56	21.20	16.19	20.68	2.37													33.3		Viton Stinger
HSVE-047	02/22/16	Zone 2	Rand	ND	18.57	21.20	16.19	20.68	2.38	18.50	450	244	20.0	0.60	206	0.00	46.0	5.62	0.06	112	43.0	50		Viton Stinger
HSVE-047	03/01/16	Zone 2	Rand	NA	NA	21.20	16.19	20.68		18.50												100		Viton Stinger
HSVE-047	03/10/16	Zone 2	Rand	ND	18.55	21.22	16.19	20.68	2.36													100		Viton Stinger
HSVE-047	03/21/16	Zone 2	Rand	ND	18.67	21.27	16.19	20.68	2.48	18.50	1,310	1,029	20.4	0.50	281	0.00	175	7.39	0.11	124	52.0	50		Viton Stinger
HSVE-047	03/28/16	Zone 2	Rand	NA	NA	21.27	16.19	20.68		18.50												66.7		Viton Stinger
HSVE-048	10/05/15	Zone 2	Main Silt	ND	22.40	26.76	16.95	26.47	5.45													100		Viton Stinger
HSVE-048	10/12/15	Zone 2	Main Silt	ND	23.08	26.75	16.95	26.47	6.13	17.90	27,300	22,578	17.00	3.60	4,722	18.0	680	9.62	0.19	119	71.0	100		Viton Stinger

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-048	10/20/15	Zone 2	Main Silt							21.90												100		Viton Stinger
HSVE-048	10/26/15	Zone 2	Main Silt	ND	24.95	26.76	16.95	26.47	8.00													100		Viton Stinger
HSVE-048	11/09/15	Zone 2	Main Silt	ND	25.20	26.72	16.95	26.47	8.25													100		Viton Stinger
HSVE-048	11/17/15	Zone 2	Main Silt	ND	22.30	26.80	16.95	26.47	5.35	21.90	34,700	29,600	13.3	5.7	5,100	23.0	310	21.9	0.85	114	6.00	100		Viton Stinger
HSVE-048	12/01/15	Zone 2	Main Silt	ND	24.62	26.65	16.95	26.47	7.67													100		Viton Stinger
HSVE-048	12/07/15	Zone 2	Main Silt	ND	24.47	26.60	16.95	26.47	7.52	21.90	16,700	14,890	14.6	5.30	1,810	20.0	243	28.1	1.61	118	68.0	100		Viton Stinger
HSVE-048	12/30/15	Zone 2	Main Silt	NA	23.05	26.60	16.95	26.47	6.10	21.90												100		Viton Stinger
HSVE-048	01/04/16	Zone 2	Main Silt	ND	22.07	26.54	16.95	26.47	5.12													100		Viton Stinger
HSVE-048	01/11/16	Zone 2	Main Silt	ND	22.17	26.55	16.95	26.47	5.22	21.90	2,120	1,021	19.7	1.00	1,099	0.00	134	25.8	1.30	113	55.0	100		Viton Stinger
HSVE-048	01/25/16	Zone 2	Main Silt	ND	22.04	26.50	16.95	26.47	5.09													100		Viton Stinger
HSVE-048	02/08/16	Zone 2	Main Silt	ND	22.16	26.50	16.95	26.47	5.21													100		Viton Stinger
HSVE-048	02/22/16	Zone 2	Main Silt	ND	22.05	26.50	16.95	26.47	5.10	21.90	15,000	8,776	17.5	2.80	6,224	11.0	465	22.1	0.95	111	57.0	100		Viton Stinger
HSVE-048	03/03/16	Zone 2	Main Silt							23.80												100		Viton Stinger
HSVE-048	03/10/16	Zone 2	Main Silt	ND	24.35	26.50	16.95	26.47	7.40													100		Viton Stinger
HSVE-048	03/21/16	Zone 2	Main Silt	ND	22.30	26.50	16.95	26.47	5.35	23.80	30,700	24,364	16.5	4.20	6,336	13.0	630	13.3	0.36	122	58.0	100		Viton Stinger
HSVE-049	10/05/15	Zone 2	Main Silt	ND	21.95	25.09	17.04	24.64	4.91													100		Viton Stinger
HSVE-049	10/12/15	Zone 2	Main Silt	ND	23.03	25.08	17.04	24.64	5.99	19.10	51,000	49,444	16.7	3.20	1,556	34.0	857	39.3	3.20	123	67.0	100		Viton Stinger
HSVE-049	10/20/15	Zone 2	Main Silt							21.90												100		Viton Stinger
HSVE-049	10/26/15	Zone 2	Main Silt	ND	23.00	25.08	17.04	24.64	5.96													100		Viton Stinger
HSVE-049	11/09/15	Zone 2	Main Silt	ND	23.62	25.06	17.04	24.64	6.58													100		Viton Stinger
HSVE-049	11/17/15	Zone 2	Main Silt	ND	22.00	25.38	17.04	24.64	4.96	21.90	43,750	42,550	17.0	3.00	1,200	29.0	785	54.8	6.22	125	64.0	100		Viton Stinger
HSVE-049	12/01/15	Zone 2	Main Silt	ND	23.60	25.50	17.04	24.64	6.56													100		Viton Stinger
HSVE-049	12/07/15	Zone 2	Main Silt	ND	23.85	25.00	17.04	24.64	6.81	21.90	10,600	7,571	16.4	4.20	3,029	29.0	942	53.7	5.78	120	57.0	100		Viton Stinger
HSVE-049	01/04/16	Zone 2	Main Silt	ND	17.20	25.10	17.04	24.64	0.16													100		Viton Stinger
HSVE-049	01/11/16	Zone 2	Main Silt	ND	16.81	25.00	17.04	24.64	-0.23	21.90								0.00	0.00	121	38.0	100		Viton Stinger
HSVE-049	01/25/16	Zone 2	Main Silt	ND	17.26	25.10	17.04	24.64	0.22													100		Viton Stinger
HSVE-049	02/08/16	Zone 2	Main Silt	ND	17.80	25.10	17.04	24.64	0.76													100		Viton Stinger
HSVE-049	02/22/16	Zone 2	Main Silt	ND	17.35	25.10	17.04	24.64	0.31	21.90	30,000	28,353	17.3	2.90	1,647	21.0	204	43.9	3.76	112	57.0	100		Viton Stinger
HSVE-049	03/10/16	Zone 2	Main Silt	ND	23.28	25.05	17.04	24.64	6.24													100		Viton Stinger
HSVE-049	03/21/16	Zone 2	Main Silt	ND	22.17	25.10	17.04	24.64	5.13	21.90	61,000	58,900	16.4	4.20	2,100	23.0	818	67.5	9.11	119	57.0	100		Viton Stinger
HSVE-050	10/05/15	Zone 2	Main Silt	ND	22.78	24.32	14.27	23.78	8.51													100		Viton Stinger
HSVE-050	10/12/15	Zone 2	Main Silt	ND	22.60	24.25	14.27	23.78	8.33	19.90	4,200	4,026	19.7	1.00	174	2.00	450	33.7	2.35	123	67.0	100		Viton Stinger
HSVE-050	10/26/15	Zone 2	Main Silt	ND	21.20	24.30	14.27	23.78	6.93													100		Viton Stinger
HSVE-050	11/09/15	Zone 2	Main Silt	ND	22.76	24.30	14.27	23.78	8.49													100		Viton Stinger
HSVE-050	11/17/15	Zone 2	Main Silt	ND	22.75	24.24	14.27	23.78	8.48	19.90	4,800	4,300	19.6	1.10	500	3.00	434	39.1	3.12	124	58.0	100		Viton Stinger
HSVE-050	12/01/15	Zone 2	Main Silt	ND	22.43	24.45	14.27	23.78	8.16													100		Viton Stinger
HSVE-050	12/07/15	Zone 2	Main Silt	ND	22.45	24.26	14.27	23.78	8.18	19.90	8,162	7,942	19.2	1.40	220	6.00	620	36.5	2.69	122	57.0	100		Viton Stinger
HSVE-050	01/04/16	Zone 2	Main Silt	ND	17.07	24.34	14.27	23.78	2.80													100		Viton Stinger
HSVE-050	01/11/16	Zone 2	Main Silt	ND	20.94	24.25	14.27	23.78	6.67	19.90	160	157	20.6	0.30	2.82	0.00	31.0	26.3	1.44	131	54.0	0		Viton Stinger
HSVE-050	01/15/16	Zone 2	Main Silt	NA	NA	24.25	14.27	23.78		19.90												16.7		Viton Stinger
HSVE-050	01/19/16	Zone 2	Main Silt	ND	23.05	24.34	14.27	23.78	8.78													16.7		Viton Stinger
HSVE-050	01/22/16	Zone 2	Main Silt	NA	NA	24.34	14.27	23.78		19.90												33.3		Viton Stinger
HSVE-050	01/25/16	Zone 2	Main Silt	ND	20.45	24.32	14.27	23.78	6.18													33.3		Viton Stinger
HSVE-050	02/08/16	Zone 2	Main Silt	ND	21.40	24.30	14.27	23.78	7.13													33.3		Viton Stinger
HSVE-050	02/12/16	Zone 2	Main Silt	NA	NA	24.30	14.27	23.78		19.90												66.7		Viton Stinger
HSVE-050	02/22/16	Zone 2	Main Silt	ND	17.22	24.32	14.27	23.78	2.95	19.90	3,220	2,838	20.1	0.80	382	2.00	357	31.1	1.89	113	56.0	50		Viton Stinger
HSVE-050	03/10/16	Zone 2	Main Silt	ND	22.80	24.40	14.27	23.78	8.53													50		Viton Stinger
HSVE-050	03/14/16	Zone 2	Main Silt	NA	NA	24.40	14.27	23.78		19.90												83.3		Viton Stinger
HSVE-050	03/21/16	Zone 2	Main Silt	ND	20.27	24.34	14.27	23.78	6.00	19.90	4,453	4,082	19.5	1.10	371	4.00	500	36.8	2.73	124	52.0	83.3		Viton Stinger
HSVE-050	03/28/16	Zone 2	Main Silt	NA	NA	24.34	14.27	23.78		19.90												100		Viton Stinger
HSVE-051	10/05/15	Zone 2	Main Silt	ND	22.95	24.94	15.02	24.54	7.93													100		Viton Stinger
HSVE-051	10/12/15	Zone 2	Main Silt	ND	23.28	24.94	15.02	24.54	8.26	20.80	4,000	2,236	19.8	0.80	1,764	2.00	300	45.8	4.33	124	64.0	100		Viton Stinger
HSVE-051	10/26/15	Zone 2	Main Silt	ND	22.85	24.92	15.02	24.54	7.83													100		Viton Stinger
HSVE-051	11/09/15	Zone 2	Main Silt	ND	23.10	24.90	15.02	24.54	8.08													100		Viton Stinger
HSVE-051	11/17/15	Zone 2	Main Silt	ND	22.90	24.90	15.02	24.54	7.88	20.80	5,035	3,935	19.4	1.20	1,100	3.00	385	48.8	4.81	123	54.0	100		Viton Stinger
HSVE-051	12/01/15	Zone 2	Main Silt	ND	23.26	24.98	15.02	24.54	8.24													100		Viton Stinger
HSVE-051	12/07/15	Zone 2	Main Silt	ND	23.39	24.93	15.02	24.54	8.37	20.80	8,930	8,153	18.6	1.90	777	6.00	665	42.2	3.57	121	54.0	100		Viton Stinger
HSVE-051	01/04/16	Zone 2	Main Silt	ND	20.74	24.95	15.02	24.54	5.72													100		Viton Stinger

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-051	01/11/16	Zone 2	Main Silt	ND	20.75	24.90	15.02	24.54	5.73	20.80	50.0	50.0	20.5	0.40	0.00	0.00	17.0	16.6	0.56	128	49.0	100		Viton Stinger
HSVE-051	01/25/16	Zone 2	Main Silt	ND	20.75	24.95	15.02	24.54	5.73													100		Viton Stinger
HSVE-051	02/08/16	Zone 2	Main Silt	ND	20.80	24.92	15.02	24.54	5.78													100		Viton Stinger
HSVE-051	02/22/16	Zone 2	Main Silt	ND	20.75	24.95	15.02	24.54	5.73	20.80	3,567	2,868	19.4	1.30	699	3.00	372	35.6	2.51	118	54.0	100		Viton Stinger
HSVE-051	03/10/16	Zone 2	Main Silt	ND	22.55	24.92	15.02	24.54	7.53													100		Viton Stinger
HSVE-051	03/21/16	Zone 2	Main Silt	ND	23.00	24.90	15.02	24.54	7.98	20.80	4,780	3,427	19.0	1.40	1,353	5.00	418	42.6	3.66	123	55.0	100		Viton Stinger
HSVE-051	03/21/16	Zone 2	Main Silt	ND	23.00	24.90	15.02	24.54	7.98	20.80	4,780	3,427	19.0	1.40	1,353	5.00	418	27.3	1.49	123	48.0	100		Viton Stinger
HSVE-052	10/06/15	Zone 5	Rand	ND	21.72	22.70	17.63	22.12	4.09													100		Viton Stinger
HSVE-052	10/14/15	Zone 5	Rand	ND	21.56	22.52	17.63	22.12	3.93	20.00	35,600	32,314	17.0	3.30	3,286	24.0	685	11.2	0.27	135	62.0	100		Viton Stinger
HSVE-052	10/27/15	Zone 5	Rand	ND	21.35	22.75	17.63	22.12	3.72													100		Viton Stinger
HSVE-052	11/10/15	Zone 5	Rand	ND	21.65	22.52	17.63	22.12	4.02													100		Viton Stinger
HSVE-052	11/18/15	Zone 5	Rand	ND	20.60	21.55	17.63	22.12	2.97	20.00	63,500	58,973	17.1	3.40	4,527	23.0	820	12.7	0.34	134	55.0	100		Viton Stinger
HSVE-052	11/23/15	Zone 5	Rand	ND	21.70	22.50	17.63	22.12	4.07													100		Viton Stinger
HSVE-052	12/01/15	Zone 5	Rand	ND	21.65	22.70	17.63	22.12	4.02													100		Viton Stinger
HSVE-052	12/08/15	Zone 5	Rand	ND	21.60	22.45	17.63	22.12	3.97	20.00	29,200	27,693	17.6	2.70	1,507	16.0	752	11.5	0.27	129	51.0	100		Viton Stinger
HSVE-052	12/29/15	Zone 5	Rand	NA	NA	22.45	17.63	22.12		20.00												0		Viton Stinger
HSVE-052	12/30/15	Zone 5	Rand	NA	21.96	22.40	17.63	22.12	4.33	20.00												0		Viton Stinger
HSVE-052	01/05/16	Zone 5	Rand	ND	21.66	22.68	17.63	22.12	4.03													0		Viton Stinger
HSVE-052	01/13/16	Zone 5	Rand	ND	Dry	22.38	17.63	22.12	4.49	20.00	2,250	2,230	20.5	0.30	19.7	0.00	513					0		Viton Stinger
HSVE-052	01/15/16	Zone 5	Rand	NA	NA	22.38	17.63	22.12		20.00												16.7		Viton Stinger
HSVE-052	01/19/16	Zone 5	Rand	ND	21.92	22.66	17.63	22.12	4.29													16.7		Viton Stinger
HSVE-052	01/22/16	Zone 5	Rand	NA	NA	22.66	17.63	22.12		20.00												33.3		Viton Stinger
HSVE-052	01/26/16	Zone 5	Rand	ND	21.45	22.68	17.63	22.12	3.82													33.3		Viton Stinger
HSVE-052	02/09/16	Zone 5	Rand	ND	21.68	22.67	17.63	22.12	4.05													33.3		Viton Stinger
HSVE-052	02/23/16	Zone 5	Rand	ND	21.66	22.68	17.63	22.12	4.03	20.00	23,400	20,493	17.9	2.60	2,907	16.0	665	6.67	0.09	126	50.0	50		Viton Stinger
HSVE-052	03/01/16	Zone 5	Rand	NA	NA	22.68	17.63	22.12		20.00												66.7		Viton Stinger
HSVE-052	03/08/16	Zone 5	Rand	ND	21.66	22.37	17.63	22.12	4.03													66.7		Viton Stinger
HSVE-052	03/14/16	Zone 5	Rand	NA	NA	22.37	17.63	22.12		20.00												66.7		Viton Stinger
HSVE-052	03/22/16	Zone 5	Rand	ND	21.66	22.68	17.63	22.12	4.03	20.00	42,500	38,059	17.0	3.70	4,441	17.0	661	17.9	0.66	131	49.0	66.7		Viton Stinger
HSVE-052	03/28/16	Zone 5	Rand	NA	NA	22.68	17.63	22.12		20.00												83.3		Viton Stinger
HSVE-053	10/06/15	Zone 5	Rand	ND	20.55	21.64	16.44	20.93	4.11													100		Viton Stinger
HSVE-053	10/14/15	Zone 5	Rand	ND	20.25	21.62	16.44	20.93	3.81	19.30	6,350	4,921	18.8	1.60	1,429	4.00	363	12.2	0.32	134	69.0	100		Viton Stinger
HSVE-053	10/27/15	Zone 5	Rand	ND	20.55	21.64	16.44	20.93	4.11													100		Viton Stinger
HSVE-053	11/10/15	Zone 5	Rand	ND	20.75	21.62	16.44	20.93	4.31													100		Viton Stinger
HSVE-053	11/18/15	Zone 5	Rand	ND	20.40	21.55	16.44	20.93	3.96	19.30	7,560	5,997	18.8	1.40	1,563	6.00	523	14.8	0.46	130	59.0	100		Viton Stinger
HSVE-053	12/01/15	Zone 5	Rand	ND	20.60	21.65	16.44	20.93	4.16													100		Viton Stinger
HSVE-053	12/09/15	Zone 5	Rand	ND	Dry	21.65	16.44	20.93	4.49	19.30	6,320	2,489	16.5	2.30	3,831	7.00	215	14.3	0.41	127	47.0	100		Viton Stinger
HSVE-053	12/29/15	Zone 5	Rand	ND	20.72	21.65	16.44	20.93	4.28	19.30												100		Viton Stinger
HSVE-053	12/29/15	Zone 5	Rand	NA	20.72	21.65	16.44	20.93	4.28	19.30												100		Viton Stinger
HSVE-053	01/05/16	Zone 5	Rand	ND	20.58	21.52	16.44	20.93	4.14													100		Viton Stinger
HSVE-053	01/13/16	Zone 5	Rand	ND	20.45	21.64	16.44	20.93	4.01	19.30	84.0	69.9	20.6	0.20	14.1	0.00	23.0	13.4	0.36	127	46.0	100		Viton Stinger
HSVE-053	01/26/16	Zone 5	Rand	ND	20.54	21.50	16.44	20.93	4.10													100		Viton Stinger
HSVE-053	02/09/16	Zone 5	Rand	ND	20.45	21.64	16.44	20.93	4.01													100		Viton Stinger
HSVE-053	02/23/16	Zone 5	Rand	ND	20.50	21.52	16.44	20.93	4.06	19.30	1,471	690	20.4	0.50	781	0.00	94.0	17.7	0.63	124	49.0	100		Viton Stinger
HSVE-053	03/07/16	Zone 5	Rand	ND	20.70	21.60	16.44	20.93	4.26													100		Viton Stinger
HSVE-053	03/22/16	Zone 5	Rand	ND	20.60	21.60	16.44	20.93	4.16	19.30	6,055	3,952	19.0	1.30	2,103	7.00	282	14.4	0.43	128	58.0	100		Viton Stinger
HSVE-053	03/28/16	Zone 5	Rand							20.90												100		Viton Stinger
HSVE-054	10/06/15	Zone 5	Main Sand	ND	Dry	22.98	13.56	23.08	9.52													100		None
HSVE-054	10/14/15	Zone 5	Main Sand	ND	18.95	22.95	13.56	23.08	5.39		190	167	20.5	0.30	22.9	0.00	42.0	37.1	2.92	131	65.0	100		None
HSVE-054	10/27/15	Zone 5	Main Sand	ND	15.42	23.00	13.56	23.08	1.86													100		None
HSVE-054	11/10/15	Zone 5	Main Sand	ND	Dry	23.00	13.56	23.08	9.52													100		None
HSVE-054	11/18/15	Zone 5	Main Sand	ND	17.95	23.07	13.56	23.08	4.39		1,265	1,152	19.8	0.90	113	0.00	208	38.4	3.08	132	57.0	100		None
HSVE-054	12/01/15	Zone 5	Main Sand	ND	13.40	23.05	13.56	23.08	-0.16													100		None
HSVE-054	12/03/15	Zone 5	Main Sand	NA	NA	23.05	13.56	23.08														0		None
HSVE-054	12/09/15	Zone 5	Main Sand	ND	Dry	22.82	13.56	23.08	9.52		277	277	20.0	0.60	0.00	0.00	47.0					0		None
HSVE-054	01/05/16	Zone 5	Main Sand	ND	Dry	23.26	13.56	23.08	9.52													0		None
HSVE-054	01/13/16	Zone 5	Main Sand	ND	19.60	22.88	13.56	23.08	6.04		148	140	19.6	1.10	8.45	0.00	31.0	21.4	0.92	130	41.0	100		None
HSVE-054	01/26/16	Zone 5	Main Sand	ND	22.26	23.00	13.56	23.08	8.70													100		None

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-054	02/09/16	Zone 5	Main Sand	ND	Dry	23.25	13.56	23.08	9.52													100		None
HSVE-054	02/23/16	Zone 5	Main Sand	ND	Dry	23.26	13.56	23.08	9.52		138	125	19.7	1.10	12.9	0.00	31.0	12.0	0.21	24.0	43.0	16.7		None
HSVE-054	03/01/16	Zone 5	Main Sand	NA	NA	23.26	13.56	23.08														66.7		None
HSVE-054	03/08/16	Zone 5	Main Sand	ND	17.94	23.00	13.56	23.08	4.38													66.7		None
HSVE-054	03/14/16	Zone 5	Main Sand	NA	NA	23.00	13.56	23.08														66.7		None
HSVE-054	03/23/16	Zone 5	Main Sand	ND	19.30	22.35	13.56	23.08	5.74		1,790	1,458	19.2	1.50	332	0.00	213	14.5	0.43	127	56.0	83.3		None
HSVE-055	10/05/15	Zone 6	Rand	ND	13.34	22.76	17.41	23.96	-4.07													0		None
HSVE-055	10/13/15	Zone 6	Rand	ND	14.37	22.75	17.41	23.96	-3.04													0		None
HSVE-055	10/26/15	Zone 6	Rand	ND	16.42	22.76	17.41	23.96	-0.99													0		None
HSVE-055	11/10/15	Zone 6	Rand	ND	16.70	22.65	17.41	23.96	-0.71													0		None
HSVE-055	11/17/15	Zone 6	Rand	ND	15.70	22.75	17.41	23.96	-1.71													0		None
HSVE-055	12/01/15	Zone 6	Rand	ND	10.96	22.70	17.41	23.96	-6.45													0		None
HSVE-055	12/08/15	Zone 6	Rand	ND	10.15	22.70	17.41	23.96	-7.26													0		None
HSVE-055	01/04/16	Zone 6	Rand	ND	5.49	22.74	17.41	23.96	-11.92													0		None
HSVE-055	01/12/16	Zone 6	Rand	ND	5.72	22.70	17.41	23.96	-11.69													0		None
HSVE-055	01/25/16	Zone 6	Rand	ND	6.35	22.62	17.41	23.96	-11.06													0		None
HSVE-055	02/09/16	Zone 6	Rand	ND	8.08	22.75	17.41	23.96	-9.33													0		None
HSVE-055	02/22/16	Zone 6	Rand	ND	10.12	22.74	17.41	23.96	-7.29													0		None
HSVE-055	03/07/16	Zone 6	Rand	ND	11.10	22.70	17.41	23.96	-6.31													0		None
HSVE-055	03/22/16	Zone 6	Rand	ND	12.02	22.45	17.41	23.96	-5.39													0	0	None
HSVE-056	10/05/15	Zone 6	Rand	ND	12.74	23.90	16.57	23.12	-3.83													0	0	Straw Stinger
HSVE-056	10/13/15	Zone 6	Rand	ND	13.40	23.90	16.57	23.12	-3.17													0	0	Straw Stinger
HSVE-056	10/26/15	Zone 6	Rand	ND	16.00	23.95	16.57	23.12	-0.57													0	0	Straw Stinger
HSVE-056	11/10/15	Zone 6	Rand	ND	16.05	23.85	16.57	23.12	-0.52													0	0	Straw Stinger
HSVE-056	11/17/15	Zone 6	Rand	ND	14.10	23.92	16.57	23.12	-2.47													0	0	Straw Stinger
HSVE-056	12/01/15	Zone 6	Rand	ND	10.85	23.90	16.57	23.12	-5.72													0	0	Straw Stinger
HSVE-056	12/08/15	Zone 6	Rand	ND	10.69	23.88	16.57	23.12	-5.88													0	0	Straw Stinger
HSVE-056	01/04/16	Zone 6	Rand	ND	6.10	23.95	16.57	23.12	-10.47													0	0	Straw Stinger
HSVE-056	01/12/16	Zone 6	Rand	ND	6.45	23.90	16.57	23.12	-10.12													0	0	Straw Stinger
HSVE-056	01/25/16	Zone 6	Rand	ND	5.90	23.95	16.57	23.12	-10.67													0		Straw Stinger
HSVE-056	02/09/16	Zone 6	Rand	ND	7.50	23.92	16.57	23.12	-9.07													0		Straw Stinger
HSVE-056	02/22/16	Zone 6	Rand	ND	9.60	23.90	16.57	23.12	-6.97													0		Straw Stinger
HSVE-056	03/07/16	Zone 6	Rand	ND	10.94	23.96	16.57	23.12	-5.63													0		Straw Stinger
HSVE-056	03/22/16	Zone 6	Rand	ND	11.37	23.80	16.57	23.12	-5.20													0	0	Straw Stinger
HSVE-057	10/05/15	Zone 6	Rand	ND	13.32	27.18	20.46	27.07	-7.14													0	0	Straw Stinger
HSVE-057	10/13/15	Zone 6	Rand	ND	14.12	27.29	20.46	27.07	-6.34													0	0	Straw Stinger
HSVE-057	10/26/15	Zone 6	Rand	ND	16.08	27.18	20.46	27.07	-4.38													0	0	Straw Stinger
HSVE-057	11/10/15	Zone 6	Rand	ND	16.00	27.12	20.46	27.07	-4.46													0	0	Straw Stinger
HSVE-057	11/17/15	Zone 6	Rand	ND	15.82	27.20	20.46	27.07	-4.64													0	0	Straw Stinger
HSVE-057	12/01/15	Zone 6	Rand	ND	11.19	27.18	20.46	27.07	-9.27													0	0	Straw Stinger
HSVE-057	12/08/15	Zone 6	Rand	ND	10.50	27.10	20.46	27.07	-9.96													0	0	Straw Stinger
HSVE-057	01/04/16	Zone 6	Rand	ND	6.20	27.18	20.46	27.07	-14.26													0	0	Straw Stinger
HSVE-057	01/12/16	Zone 6	Rand	ND	6.58	27.20	20.46	27.07	-13.88													0	0	Straw Stinger
HSVE-057	01/25/16	Zone 6	Rand	ND	5.75	27.16	20.46	27.07	-14.71													0		Straw Stinger
HSVE-057	02/09/16	Zone 6	Rand	ND	7.41	27.15	20.46	27.07	-13.05													0		Straw Stinger
HSVE-057	02/23/16	Zone 6	Rand	ND	9.70	27.18	20.46	27.07	-10.76													0	0	Straw Stinger
HSVE-057	03/01/16	Zone 6	Rand	NA	NA	27.18	20.46	27.07														0	100	Straw Stinger
HSVE-057	03/03/16	Zone 6	Rand																			0	100	Straw Stinger
HSVE-057	03/04/16	Zone 6	Rand	NA	NA	27.18	20.46	27.07														0	100	Straw Stinger
HSVE-057	03/07/16	Zone 6	Rand	ND	24.70	27.20	20.46	27.07	4.24		11.0	0.00	20.8	0.00	11.0	0.00	2.00					0	100	Straw Stinger
HSVE-057	03/08/16	Zone 6	Rand	ND	24.70	27.20	20.46	27.07	4.24		71.0	1.43	20.8	0.00	69.6	0.00	2.00					0	100	Straw Stinger
HSVE-057	03/09/16	Zone 6	Rand	ND	24.70	27.20	20.46	27.07	4.24		36.0	0.00	20.8	0.10	36.0	0.00	1.00					0	100	Straw Stinger
HSVE-057	03/10/16	Zone 6	Rand								34.0	1.65	20.8	0.10	32.4	0.00	1.00					0	100	Straw Stinger
HSVE-057	03/22/16	Zone 6	Rand	ND	11.00	27.10	20.46	27.07	-9.46													0	0	Straw Stinger
HSVE-058	10/05/15	Zone 6	N. Olive	ND	12.06	14.55	9.59	15.12	2.47													0		Viton Stinger
HSVE-058	10/13/15	Zone 6	N. Olive	ND	12.80	14.60	9.59	15.12	3.21	10.10	24,300	0.00	19.7	1.10	24,300	16.0	36.0					0		Viton Stinger
HSVE-058	10/19/15	Zone 6	N. Olive	NA	NA	14.60	9.59	15.12		10.10												50		Viton Stinger
HSVE-058	10/26/15	Zone 6	N. Olive	ND	11.91	14.62	9.59	15.12	2.32													50		Viton Stinger

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-058	11/03/15	Zone 6	N. Olive	NA	NA	14.62	9.59	15.12		10.10												83.3		Viton Stinger
HSVE-058	11/10/15	Zone 6	N. Olive	ND	11.15	14.47	9.59	15.12	1.56													83.3		Viton Stinger
HSVE-058	11/11/15	Zone 6	N. Olive	NA	NA	14.47	9.59	15.12		10.10												100		Viton Stinger
HSVE-058	11/17/15	Zone 6	N. Olive	ND	10.14	14.50	9.59	15.12	0.55	10.10	56,200	19,000	14.7	5.10	37,200	38.0	55.6	12.0	0.29	121	58.0	100		Viton Stinger
HSVE-058	11/23/15	Zone 6	N. Olive	ND	10.92	14.00	9.59	15.12	1.33													100		Viton Stinger
HSVE-058	12/01/15	Zone 6	N. Olive	ND	10.98	14.46	9.59	15.12	1.39													100		Viton Stinger
HSVE-058	12/08/15	Zone 6	N. Olive	ND	9.40	14.45	9.59	15.12	-0.19	10.10												0		Viton Stinger
HSVE-058	12/10/15	Zone 6	N. Olive	NA	NA	14.45	9.59	15.12		10.10												100		Viton Stinger
HSVE-058	01/04/16	Zone 6	N. Olive	ND	10.10	15.30	9.59	15.12	0.51													100		Viton Stinger
HSVE-058	01/12/16	Zone 6	N. Olive	ND	10.75	15.30	9.59	15.12	1.16	10.10	3.00	3.00	20.8	0.00	0.00	0.00	1.00	16.9	0.57	128	38.0	100		Viton Stinger
HSVE-058	01/25/16	Zone 6	N. Olive	ND	9.90	15.30	9.59	15.12	0.31													100		Viton Stinger
HSVE-058	02/09/16	Zone 6	N. Olive	ND	6.46	14.82	9.59	15.12	-3.13													100		Viton Stinger
HSVE-058	02/23/16	Zone 6	N. Olive	ND	10.00	15.30	9.59	15.12	0.41	10.10	670	0.00	20.8	0.30	670	0.00	5.00	9.12	0.13	47.0	45.0	50		Viton Stinger
HSVE-058	03/07/16	Zone 6	N. Olive	ND	9.82	14.80	9.59	15.12	0.23													50		Viton Stinger
HSVE-058	03/22/16	Zone 6	N. Olive	ND	11.05	14.80	9.59	15.12	1.46	10.10	370	9.71	20.8	0.00	360	0.00	3.00	5.78	0.05	28.0	49.0	33.3		Viton Stinger
HSVE-058	03/28/16	Zone 6	N. Olive	NA	NA	14.80	9.59	15.12		10.10												50		Viton Stinger
HSVE-059	10/05/15	Zone 6	Rand	ND	12.30	25.12	17.54	25.11	-5.24													0	0	Straw Stinger
HSVE-059	10/13/15	Zone 6	Rand	ND	12.91	25.18	17.54	25.11	-4.63													0	0	Straw Stinger
HSVE-059	10/26/15	Zone 6	Rand	ND	14.50	25.20	17.54	25.11	-3.04													0	0	Straw Stinger
HSVE-059	11/10/15	Zone 6	Rand	ND	13.82	25.10	17.54	25.11	-3.72													0	0	Straw Stinger
HSVE-059	11/17/15	Zone 6	Rand	ND	14.90	25.20	17.54	25.11	-2.64													0	0	Straw Stinger
HSVE-059	12/01/15	Zone 6	Rand	ND	10.90	25.20	17.54	25.11	-6.64													0	0	Straw Stinger
HSVE-059	12/08/15	Zone 6	Rand	ND	9.65	25.18	17.54	25.11	-7.89													0	0	Straw Stinger
HSVE-059	01/04/16	Zone 6	Rand	ND	6.85	25.30	17.54	25.11	-10.69													0	0	Straw Stinger
HSVE-059	01/12/16	Zone 6	Rand	ND	7.10	25.25	17.54	25.11	-10.44													0	0	Straw Stinger
HSVE-059	01/25/16	Zone 6	Rand	ND	4.50	25.30	17.54	25.11	-13.04													0		Straw Stinger
HSVE-059	02/09/16	Zone 6	Rand	ND	6.16	25.30	17.54	25.11	-11.38													0		Straw Stinger
HSVE-059	02/23/16	Zone 6	Rand	ND	8.45	25.30	17.54	25.11	-9.09													0	0	Straw Stinger
HSVE-059	03/01/16	Zone 6	Rand	NA	NA	25.30	17.54	25.11														0	100	Straw Stinger
HSVE-059	03/03/16	Zone 6	Rand																			0	100	Straw Stinger
HSVE-059	03/04/16	Zone 6	Rand	NA	NA	25.30	17.54	25.11														0	100	Straw Stinger
HSVE-059	03/07/16	Zone 6	Rand	ND	22.28	25.10	17.54	25.11	4.74		1,367	103	20.6	0.30	1,264	0.00	3.00					0	100	Straw Stinger
HSVE-059	03/08/16	Zone 6	Rand	ND	22.28	25.10	17.54	25.11	4.74		4,035	194	20.4	0.50	3,841	3.00	6.00					0	100	Straw Stinger
HSVE-059	03/09/16	Zone 6	Rand	ND	22.30	25.10	17.54	25.11	4.76		180	21.8	20.8	0.30	158	0.00	4.00					0	100	Straw Stinger
HSVE-059	03/10/16	Zone 6	Rand								170	12.7	20.5	0.40	157	0.00	2.00					0	100	Straw Stinger
HSVE-059	03/22/16	Zone 6	Rand	ND	9.31	25.00	17.54	25.11	-8.23													0	0	Straw Stinger
HSVE-060	10/05/15	Zone 6	Rand	ND	12.77	24.68	17.83	24.31	-5.06													0	0	Straw Stinger
HSVE-060	10/13/15	Zone 6	Rand	ND	13.55	24.60	17.83	24.31	-4.28													0	0	Straw Stinger
HSVE-060	10/26/15	Zone 6	Rand	ND	14.55	24.68	17.83	24.31	-3.28													0	0	Straw Stinger
HSVE-060	11/10/15	Zone 6	Rand	ND	14.40	24.68	17.83	24.31	-3.43													0	0	Straw Stinger
HSVE-060	11/17/15	Zone 6	Rand	ND	14.67	24.65	17.83	24.31	-3.16													0	0	Straw Stinger
HSVE-060	12/01/15	Zone 6	Rand	ND	24.70	24.70	17.83	24.31	6.48													0	0	Straw Stinger
HSVE-060	12/08/15	Zone 6	Rand	ND	10.20	24.70	17.83	24.31	-7.63													0	0	Straw Stinger
HSVE-060	01/04/16	Zone 6	Rand	ND	3.10	24.70	17.83	24.31	-14.73													0	0	Straw Stinger
HSVE-060	01/12/16	Zone 6	Rand	ND	3.22	24.70	17.83	24.31	-14.61													0	0	Straw Stinger
HSVE-060	01/25/16	Zone 6	Rand	ND	4.42	24.70	17.83	24.31	-13.41													0		Straw Stinger
HSVE-060	02/09/16	Zone 6	Rand	ND	6.05	24.68	17.83	24.31	-11.78													0		Straw Stinger
HSVE-060	02/23/16	Zone 6	Rand	ND	9.45	24.70	17.83	24.31	-8.38													0	0	Straw Stinger
HSVE-060	03/01/16	Zone 6	Rand	NA	NA	24.70	17.83	24.31														0	100	Straw Stinger
HSVE-060	03/03/16	Zone 6	Rand																			0	100	Straw Stinger
HSVE-060	03/04/16	Zone 6	Rand	NA	NA	24.70	17.83	24.31														16.7	100	Straw Stinger
HSVE-060	03/07/16	Zone 6	Rand	ND	21.26	24.70	17.83	24.31	3.43		4.00	4.00	20.8	0.00	0.00	0.00	2.00					16.7	100	Straw Stinger
HSVE-060	03/08/16	Zone 6	Rand	ND	21.26	24.70	17.83	24.31	3.43		2.00	2.00	20.7	0.00	0.00	0.00	1.00					16.7	100	Straw Stinger
HSVE-060	03/09/16	Zone 6	Rand	ND	21.30	24.70	17.83	24.31	3.47		160	0.00	20.8	0.10	160	0.00	2.00					16.7	100	Straw Stinger
HSVE-060	03/10/16	Zone 6	Rand								0.00	0.00	20.8	0.00	0.00	0.00	0.00					16.7	100	Straw Stinger
HSVE-060	03/22/16	Zone 6	Rand	ND	9.86	24.65	17.83	24.31	-7.97													0	0	Straw Stinger
HSVE-061	10/05/15	Zone 6	N. Olive	ND	12.41	16.74	11.75	16.24	0.66													0	0	Straw Stinger
HSVE-061	10/13/15	Zone 6	N. Olive	ND	13.09	16.72	11.75	16.24	1.34		65,000	41,377	18.6	1.90	23,623	43.0	3.00					0	0	Straw Stinger

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-061	10/26/15	Zone 6	N. Olive	ND	14.40	16.74	11.75	16.24	2.65													0	0	Straw Stinger
HSVE-061	11/03/15	Zone 6	N. Olive	NA	NA	16.74	11.75	16.24														0	100	Straw Stinger
HSVE-061	11/10/15	Zone 6	N. Olive	ND	13.76	16.71	11.75	16.24	2.01													0	100	Straw Stinger
HSVE-061	11/17/15	Zone 6	N. Olive	ND	13.88	16.70	11.75	16.24	2.13		1,120	1,100	10.7	0.10	20.0	0.00	24.0	0.00	0.00	119	52.0	0	100	Straw Stinger
HSVE-061	11/23/15	Zone 6	N. Olive	ND	14.06	16.60	11.75	16.24	2.31													0	100	Straw Stinger
HSVE-061	12/01/15	Zone 6	N. Olive	ND	13.78	15.45	11.75	16.24	2.03													0	100	Straw Stinger
HSVE-061	12/08/15	Zone 6	N. Olive	ND	13.59	15.30	11.75	16.24	1.84		35.0	35.0	20.8	0.00	0.00	0.00	9.00			118	49.0	0	100	Straw Stinger
HSVE-061	12/14/15	Zone 6	N. Olive	NA	NA	15.30	11.75	16.24														0	0	Straw Stinger
HSVE-061	01/04/16	Zone 6	N. Olive	ND	2.28	15.24	11.75	16.24	-9.47													0	0	Straw Stinger
HSVE-061	01/12/16	Zone 6	N. Olive	ND	2.46	15.25	11.75	16.24	-9.29													0	0	Straw Stinger
HSVE-061	01/25/16	Zone 6	N. Olive	ND	3.95	15.25	11.75	16.24	-7.80													0		Straw Stinger
HSVE-061	02/09/16	Zone 6	N. Olive	ND	5.11	15.25	11.75	16.24	-6.64													0		Straw Stinger
HSVE-061	02/23/16	Zone 6	N. Olive	ND	8.00	15.24	11.75	16.24	-3.75													0	0	Straw Stinger
HSVE-061	03/07/16	Zone 6	N. Olive	ND	9.60	15.10	11.75	16.24	-2.15													0	0	Straw Stinger
HSVE-061	03/22/16	Zone 6	N. Olive	ND	9.50	15.07	11.75	16.24	-2.25													0	0	Straw Stinger
HSVE-062	10/05/15	Zone 6	N. Olive	ND	6.95	9.65	6.12	9.65	0.83													50		Viton Stinger
HSVE-062	10/13/15	Zone 6	N. Olive	ND	7.00	9.65	6.12	9.65	0.88	6.90	23,800	0.00	18.5	2.10	23,800	16.0	12.0	94.8	19.0	131	64.0	50		Viton Stinger
HSVE-062	10/26/15	Zone 6	N. Olive	ND	6.84	9.70	6.12	9.65	0.72													50		Viton Stinger
HSVE-062	11/10/15	Zone 6	N. Olive	ND	6.75	9.65	6.12	9.65	0.63													50		Viton Stinger
HSVE-062	11/17/15	Zone 6	N. Olive	ND	3.33	9.70	6.12	9.65	-2.79	6.90								8.65	0.15	120	56.0	50		Viton Stinger
HSVE-062	11/19/15	Zone 6	N. Olive	NA	NA	9.70	6.12	9.65		6.90												50		Viton Stinger
HSVE-062	11/20/15	Zone 6	N. Olive	NA	NA	9.70	6.12	9.65		6.90												33.3		Viton Stinger
HSVE-062	11/24/15	Zone 6	N. Olive	ND	8.30	9.70	6.12	9.65	2.18	6.90								5.34	0.05	80.0	54.0	33.3		Viton Stinger
HSVE-062	12/01/15	Zone 6	N. Olive	ND	5.55	10.00	6.12	9.65	-0.57													33.3		Viton Stinger
HSVE-062	12/08/15	Zone 6	N. Olive	ND	6.75	10.00	6.12	9.65	0.63	6.90	65.0	62.2	20.8	0.00	2.82	0.00	15.0	5.65	0.05	45.0	48.0	16.7		Viton Stinger
HSVE-062	12/28/15	Zone 6	N. Olive	NA	NA	10.00	6.12	9.65		6.90												0		Viton Stinger
HSVE-062	01/04/16	Zone 6	N. Olive	ND	4.06	10.08	6.12	9.65	-2.06													0		Viton Stinger
HSVE-062	01/12/16	Zone 6	N. Olive	ND	3.62	10.00	6.12	9.65	-2.50	6.90												0		Viton Stinger
HSVE-062	01/25/16	Zone 6	N. Olive	ND	5.10	10.08	6.12	9.65	-1.02													0		Viton Stinger
HSVE-062	02/09/16	Zone 6	N. Olive	ND	6.22	9.82	6.12	9.65	0.10													0		Viton Stinger
HSVE-062	02/23/16	Zone 6	N. Olive	ND	7.80	10.08	6.12	9.65	1.68	6.90	200	0.00	20.8	0.00	200	0.00	3.00	0.00	0.00	17.0	42.0	16.7		Viton Stinger
HSVE-062	03/07/16	Zone 6	N. Olive	ND	9.48	10.00	6.12	9.65	3.36													16.7		Viton Stinger
HSVE-062	03/14/16	Zone 6	N. Olive	NA	NA	10.00	6.12	9.65		6.90												33.3		Viton Stinger
HSVE-062	03/22/16	Zone 6	N. Olive	ND	8.83	10.00	6.12	9.65	2.71	6.90	2,087	124	20.6	0.10	1,963	2.00	5.00	0.00	0.00	29.0	50.0	16.7		Viton Stinger
HSVE-062	03/28/16	Zone 6	N. Olive	NA	NA	10.00	6.12	9.65		6.90												33.3		Viton Stinger
HSVE-063	10/05/15	Zone 6	Rand	ND	12.90	21.60	14.55	21.07	-1.65													0	0	Straw Stinger
HSVE-063	10/13/15	Zone 6	Rand	ND	13.53	21.58	14.55	21.07	-1.02													0	0	Straw Stinger
HSVE-063	10/26/15	Zone 6	Rand	ND	14.50	21.55	14.55	21.07	-0.05													0	0	Straw Stinger
HSVE-063	11/10/15	Zone 6	Rand	ND	14.71	21.65	14.55	21.07	0.16													0	0	Straw Stinger
HSVE-063	11/17/15	Zone 6	Rand	ND	14.35	21.55	14.55	21.07	-0.20													0	0	Straw Stinger
HSVE-063	12/01/15	Zone 6	Rand	ND	10.90	21.70	14.55	21.07	-3.65													0	0	Straw Stinger
HSVE-063	12/08/15	Zone 6	Rand	ND	10.73	21.67	14.55	21.07	-3.82													0	0	Straw Stinger
HSVE-063	01/04/16	Zone 6	Rand	ND	1.75	21.55	14.55	21.07	-12.80													0	0	Straw Stinger
HSVE-063	01/12/16	Zone 6	Rand	ND	2.40	26.55	14.55	21.07	-12.15													0	0	Straw Stinger
HSVE-063	01/25/16	Zone 6	Rand	ND	4.63	21.55	14.55	21.07	-9.92													0	0	Straw Stinger
HSVE-063	02/09/16	Zone 6	Rand	ND	5.90	21.55	14.55	21.07	-8.65													0	0	Straw Stinger
HSVE-063	02/23/16	Zone 6	Rand	ND	8.74	21.55	14.55	21.07	-5.81													0	0	Straw Stinger
HSVE-063	03/07/16	Zone 6	Rand	ND	9.14	21.65	14.55	21.07	-5.41													0	0	Straw Stinger
HSVE-063	03/22/16	Zone 6	Rand	ND	9.90	21.64	14.55	21.07	-4.65													0	0	Straw Stinger
HSVE-064	10/05/15	Zone 6	N. Olive	ND	Dry	10.95	8.41	10.91	2.50													16.7		None
HSVE-064	10/13/15	Zone 6	N. Olive	ND	Dry	19.93	8.41	10.91	2.50		25.0	19.2	20.3	0.60	5.80	0.00	5.00	7.82	0.09	8.00	66.0	16.7		None
HSVE-064	10/19/15	Zone 6	N. Olive	NA	NA	19.93	8.41	10.91														0		None
HSVE-064	10/26/15	Zone 6	N. Olive	ND	Dry	10.88	8.41	10.91	2.50													0		None
HSVE-064	11/10/15	Zone 6	N. Olive	ND	Dry	10.93	8.41	10.91	2.50													0		None
HSVE-064	11/17/15	Zone 6	N. Olive	ND	Dry	10.87	8.41	10.91	2.50		35.0	35.0	18.0	0.50	0.00	0.00	9.00					0		None
HSVE-064	11/30/15	Zone 6	N. Olive	NA	NA	10.87	8.41	10.91														50		None
HSVE-064	12/01/15	Zone 6	N. Olive	ND	Dry	11.00	8.41	10.91	2.50													50		None
HSVE-064	12/03/15	Zone 6	N. Olive	NA	NA	11.00	8.41	10.91														100		None

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-064	12/08/15	Zone 6	N. Olive	ND	10.06	11.00	8.41	10.91	1.65		20.0	20.0	20.7	0.30	0.00	0.00	6.00	32.5	2.06	115	52.0	100		None
HSVE-064	12/15/15	Zone 6	N. Olive	NA	NA	11.00	8.41	10.91														33.3		None
HSVE-064	12/22/15	Zone 6	N. Olive	ND	8.56	11.00	8.41	10.91	0.15													33.3		None
HSVE-064	12/28/15	Zone 6	N. Olive	NA	NA	11.00	8.41	10.91														0		None
HSVE-064	01/05/16	Zone 6	N. Olive	ND	2.30	10.80	8.41	10.91	-6.11													0		None
HSVE-064	01/12/16	Zone 6	N. Olive	ND	2.65	10.88	8.41	10.91	-5.76													0		None
HSVE-064	01/25/16	Zone 6	N. Olive	ND	5.10	10.80	8.41	10.91	-3.31													0		None
HSVE-064	02/09/16	Zone 6	N. Olive	ND	6.70	10.82	8.41	10.91	-1.71													0		None
HSVE-064	02/23/16	Zone 6	N. Olive	ND	10.20	10.80	8.41	10.91	1.79		9.00	9.00	20.2	0.40	0.00	0.00	3.00					0		None
HSVE-064	03/07/16	Zone 6	N. Olive	ND	9.55	10.86	8.41	10.91	1.14													0		None
HSVE-064	03/22/16	Zone 6	N. Olive	ND	10.32	10.80	8.41	10.91	1.91		47.0	44.1	20.1	0.30	2.94	0.00	8.00					0		None
HSVE-065	10/05/15	Zone 6	Rand	ND	13.40	21.10	14.48	21.02	-1.08													0	0	Straw Stinger
HSVE-065	10/13/15	Zone 6	Rand	ND	13.98	21.10	14.48	21.02	-0.50													0	0	Straw Stinger
HSVE-065	10/26/15	Zone 6	Rand	ND	15.35	21.15	14.48	21.02	0.87													0	0	Straw Stinger
HSVE-065	11/10/15	Zone 6	Rand	ND	15.18	22.07	14.48	21.02	0.70													0	0	Straw Stinger
HSVE-065	11/17/15	Zone 6	Rand	ND	14.28	21.10	14.48	21.02	-0.20													0	0	Straw Stinger
HSVE-065	12/01/15	Zone 6	Rand	ND	11.30	21.12	14.48	21.02	-3.18													0	0	Straw Stinger
HSVE-065	12/08/15	Zone 6	Rand	ND	11.16	21.10	14.48	21.02	-3.32													0	0	Straw Stinger
HSVE-065	01/05/16	Zone 6	Rand	ND	2.00	21.00	14.48	21.02	-12.48													0	0	Straw Stinger
HSVE-065	01/12/16	Zone 6	Rand	ND	2.30	21.00	14.48	21.02	-12.18													0	0	Straw Stinger
HSVE-065	01/25/16	Zone 6	Rand	ND	5.48	21.00	14.48	21.02	-9.00													0	0	Straw Stinger
HSVE-065	02/09/16	Zone 6	Rand	ND	7.60	21.08	14.48	21.02	-6.88													0	0	Straw Stinger
HSVE-065	02/23/16	Zone 6	Rand	ND	9.25	21.00	14.48	21.02	-5.23													0	0	Straw Stinger
HSVE-065	03/07/16	Zone 6	Rand	ND	9.60	21.00	14.48	21.02	-4.88													0	0	Straw Stinger
HSVE-065	03/22/16	Zone 6	Rand	ND	10.35	21.00	14.48	21.02	-4.13													0	0	Straw Stinger
HSVE-066	10/05/15	Zone 6	Rand	ND	13.85	21.73	17.54	21.06	-3.69													0	0	Straw Stinger
HSVE-066	10/13/15	Zone 6	Rand	ND	14.40	21.72	17.54	21.06	-3.14													0	0	Straw Stinger
HSVE-066	10/27/15	Zone 6	Rand	ND	15.50	21.68	17.54	21.06	-2.04													0	0	Straw Stinger
HSVE-066	11/10/15	Zone 6	Rand	ND	15.68	21.72	17.54	21.06	-1.86													0	0	Straw Stinger
HSVE-066	11/17/15	Zone 6	Rand	ND	15.20	21.72	17.54	21.06	-2.34													0	0	Straw Stinger
HSVE-066	12/01/15	Zone 6	Rand	ND	11.82	21.72	17.54	21.06	-5.72													0	0	Straw Stinger
HSVE-066	12/08/15	Zone 6	Rand	ND	11.70	21.72	17.54	21.06	-5.84													0	0	Straw Stinger
HSVE-066	01/05/16	Zone 6	Rand	ND	2.03	21.65	17.54	21.06	-15.51													0	0	Straw Stinger
HSVE-066	01/12/16	Zone 6	Rand	ND	2.33	26.62	17.54	21.06	-15.21													0	0	Straw Stinger
HSVE-066	01/25/16	Zone 6	Rand	ND	5.90	21.65	17.54	21.06	-11.64													0	0	Straw Stinger
HSVE-066	02/09/16	Zone 6	Rand	ND	7.90	21.65	17.54	21.06	-9.64													0	0	Straw Stinger
HSVE-066	02/23/16	Zone 6	Rand	ND	8.90	21.65	17.54	21.06	-8.64													0	0	Straw Stinger
HSVE-066	03/07/16	Zone 6	Rand	ND	9.75	21.75	17.54	21.06	-7.79													0	0	Straw Stinger
HSVE-066	03/22/16	Zone 6	Rand	ND	10.60	21.62	17.54	21.06	-6.94													0	0	Straw Stinger
HSVE-067	10/01/15	Zone 6	N. Olive	NA	NA	11.82	8.48	12.00														0	100	Straw Stinger
HSVE-067	10/05/15	Zone 6	N. Olive	ND	10.92	11.85	8.48	12.00	2.44													0		Straw Stinger
HSVE-067	10/13/15	Zone 6	N. Olive	ND	Dry	11.83	8.48	12.00	3.52		7.00	7.00	19.9	0.20	0.00	0.00	2.00					0	0	Straw Stinger
HSVE-067	10/27/15	Zone 6	N. Olive	ND	11.70	11.90	8.48	12.00	3.22													0	0	Straw Stinger
HSVE-067	11/10/15	Zone 6	N. Olive	ND	10.82	11.85	8.48	12.00	2.34													0	0	Straw Stinger
HSVE-067	11/17/15	Zone 6	N. Olive	ND	9.73	11.78	8.48	12.00	1.25		30.0	30.0	20.1	0.50	0.00	0.00	7.00					0	0	Straw Stinger
HSVE-067	12/01/15	Zone 6	N. Olive	ND	10.25	11.80	8.48	12.00	1.77													0	0	Straw Stinger
HSVE-067	12/08/15	Zone 6	N. Olive	ND	10.70	11.80	8.48	12.00	2.22		29.0	29.0	20.6	0.30	0.00	0.00	8.00					0	0	Straw Stinger
HSVE-067	01/05/16	Zone 6	N. Olive	ND	2.00	11.75	8.48	12.00	-6.48													0	0	Straw Stinger
HSVE-067	01/12/16	Zone 6	N. Olive	ND	3.65	11.75	8.48	12.00	-4.83													0	0	Straw Stinger
HSVE-067	01/25/16	Zone 6	N. Olive	ND	5.65	11.75	8.48	12.00	-2.83													0		Straw Stinger
HSVE-067	02/09/16	Zone 6	N. Olive	ND	7.10	11.75	8.48	12.00	-1.38													0		Straw Stinger
HSVE-067	02/23/16	Zone 6	N. Olive	ND	9.25	11.75	8.48	12.00	0.77		5.00	5.00	20.4	0.50	0.00	0.00	3.00					0	0	Straw Stinger
HSVE-067	03/07/16	Zone 6	N. Olive	ND	9.36	11.87	8.48	12.00	0.88													0	0	Straw Stinger
HSVE-067	03/22/16	Zone 6	N. Olive	ND	10.20	11.82	8.48	12.00	1.72		30.0	30.0	20.3	0.50	0.00	0.00	7.00					0	0	Straw Stinger
HSVE-068	10/05/15	Zone 6	Rand	ND	13.67	21.50	17.47	20.98	-3.80													0	0	Straw Stinger
HSVE-068	10/13/15	Zone 6	Rand	ND	14.16	21.50	17.47	20.98	-3.31													0	0	Straw Stinger
HSVE-068	10/27/15	Zone 6	Rand	ND	15.10	21.46	17.47	20.98	-2.37													0	0	Straw Stinger
HSVE-068	11/10/15	Zone 6	Rand	ND	15.45	21.45	17.47	20.98	-2.02													0	0	Straw Stinger

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-068	11/17/15	Zone 6	Rand	ND	16.68	19.50	17.47	20.98	-0.79													0	0	Straw Stinger
HSVE-068	12/01/15	Zone 6	Rand	ND	10.98	21.50	17.47	20.98	-6.49													0	0	Straw Stinger
HSVE-068	12/08/15	Zone 6	Rand	ND	11.60	21.50	17.47	20.98	-5.87													0	0	Straw Stinger
HSVE-068	01/05/16	Zone 6	Rand	ND	1.60	21.40	17.47	20.98	-15.87													0	0	Straw Stinger
HSVE-068	01/12/16	Zone 6	Rand	ND	3.26	21.37	17.47	20.98	-14.21													0	0	Straw Stinger
HSVE-068	01/25/16	Zone 6	Rand	ND	6.20	21.40	17.47	20.98	-11.27													0	0	Straw Stinger
HSVE-068	02/09/16	Zone 6	Rand	ND	7.70	21.40	17.47	20.98	-9.77													0	0	Straw Stinger
HSVE-068	02/23/16	Zone 6	Rand	ND	9.35	21.40	17.47	20.98	-8.12													0	0	Straw Stinger
HSVE-068	03/07/16	Zone 6	Rand	ND	9.50	21.48	17.47	20.98	-7.97													0	0	Straw Stinger
HSVE-068	03/22/16	Zone 6	Rand	ND	10.30	21.42	17.47	20.98	-7.17													0	0	Straw Stinger
HSVE-069	10/05/15	Zone 6	Rand	ND	17.90	22.35	18.59	22.10	-0.69													0	0	Straw Stinger
HSVE-069	10/13/15	Zone 6	Rand	ND	17.98	22.24	18.59	22.10	-0.61													0	0	Straw Stinger
HSVE-069	10/27/15	Zone 6	Rand	ND	18.90	22.28	18.59	22.10	0.31													0	0	Straw Stinger
HSVE-069	11/10/15	Zone 6	Rand	ND	19.35	22.30	18.59	22.10	0.76													0	0	Straw Stinger
HSVE-069	11/17/15	Zone 6	Rand	ND	17.99	22.25	18.59	22.10	-0.60													0	0	Straw Stinger
HSVE-069	12/01/15	Zone 6	Rand	ND	15.70	22.35	18.59	22.10	-2.89													0	0	Straw Stinger
HSVE-069	12/08/15	Zone 6	Rand	ND	15.86	22.40	18.59	22.10	-2.73													0	0	Straw Stinger
HSVE-069	01/05/16	Zone 6	Rand	ND	4.80	22.40	18.59	22.10	-13.79													0		Straw Stinger
HSVE-069	01/12/16	Zone 6	Rand	ND	9.06	22.32	18.59	22.10	-9.53													0		Straw Stinger
HSVE-069	01/25/16	Zone 6	Rand	ND	11.58	22.40	18.59	22.10	-7.01													0		Straw Stinger
HSVE-069	02/09/16	Zone 6	Rand	ND	13.10	22.18	18.59	22.10	-5.49													0		Straw Stinger
HSVE-069	02/23/16	Zone 6	Rand	ND	14.38	22.40	18.59	22.10	-4.21													0	0	Straw Stinger
HSVE-069	03/07/16	Zone 6	Rand	ND	14.45	22.27	18.59	22.10	-4.14													0	0	Straw Stinger
HSVE-069	03/22/16	Zone 6	Rand	ND	15.04	22.20	18.59	22.10	-3.55													0	0	Straw Stinger
HSVE-070	10/05/15	Zone 6	N. Olive	ND	9.48	13.10	8.60	13.08	0.88													16.7		Viton Stinger
HSVE-070	10/13/15	Zone 6	N. Olive	ND	9.38	12.93	8.60	13.08	0.78	9.10	2,600	571	19.7	1.00	2,029	1.00	47.0	0.00	0.00	107	70.0	16.7		Viton Stinger
HSVE-070	10/19/15	Zone 6	N. Olive	NA	NA	12.93	8.60	13.08		9.10												0		Viton Stinger
HSVE-070	10/27/15	Zone 6	N. Olive	ND	11.72	12.88	8.60	13.08	3.12													0		Viton Stinger
HSVE-070	11/03/15	Zone 6	N. Olive	NA	NA	12.88	8.60	13.08		9.10												16.7		Viton Stinger
HSVE-070	11/10/15	Zone 6	N. Olive	ND	7.95	12.95	8.60	13.08	-0.65													16.7		Viton Stinger
HSVE-070	11/11/15	Zone 6	N. Olive	NA	NA	12.95	8.60	13.08		9.10												0		Viton Stinger
HSVE-070	11/17/15	Zone 6	N. Olive	ND	11.65	12.98	8.60	13.08	3.05	9.10	4,060	1,200	11.7	5.00	2,860	3.00	6.50					0		Viton Stinger
HSVE-070	11/30/15	Zone 6	N. Olive	NA	NA	12.98	8.60	13.08		9.10												16.7		Viton Stinger
HSVE-070	12/01/15	Zone 6	N. Olive	ND	8.95	13.00	8.60	13.08	0.35													16.7		Viton Stinger
HSVE-070	12/08/15	Zone 6	N. Olive	ND	8.94	12.90	8.60	13.08	0.34	9.10	315	51.6	20.3	0.40	263	0.00	8.00	8.94	0.13	55.0	54.0	33.3		Viton Stinger
HSVE-070	12/28/15	Zone 6	N. Olive	NA	NA	12.90	8.60	13.08		9.10												0		Viton Stinger
HSVE-070	01/01/16	Zone 6	N. Olive							9.10												0		Viton Stinger
HSVE-070	01/05/16	Zone 6	N. Olive	ND	9.70	13.50	8.60	13.08	1.10													0		Viton Stinger
HSVE-070	01/12/16	Zone 6	N. Olive	ND	10.33	13.00	8.60	13.08	1.73		12,400	0.00	16.4	3.50	12,400	15.0	35.0					0		Viton Stinger
HSVE-070	01/15/16	Zone 6	N. Olive	NA	NA	13.00	8.60	13.08		9.10												16.7		Viton Stinger
HSVE-070	01/19/16	Zone 6	N. Olive	ND	9.08	13.50	8.60	13.08	0.48													16.7		Viton Stinger
HSVE-070	01/21/16	Zone 6	N. Olive	NA	NA	13.50	8.60	13.08		9.10												0		Viton Stinger
HSVE-070	01/25/16	Zone 6	N. Olive	ND	Dry	12.87	8.60	13.08	4.48													0		Viton Stinger
HSVE-070	02/09/16	Zone 6	N. Olive	ND	Dry	13.45	8.60	13.08	4.48													0		Viton Stinger
HSVE-070	02/12/16	Zone 6	N. Olive	NA	NA	13.45	8.60	13.08		9.10												16.7		Viton Stinger
HSVE-070	02/23/16	Zone 6	N. Olive	ND	9.95	13.50	8.60	13.08	1.35	9.10	3,925	739	19.3	0.80	3,186	3.00	25.0	5.62	0.05	51.0	46.0	16.7		Viton Stinger
HSVE-070	03/07/16	Zone 6	N. Olive	ND	8.95	12.73	8.60	13.08	0.35													16.7		Viton Stinger
HSVE-070	03/22/16	Zone 6	N. Olive	ND	8.93	12.81	8.60	13.08	0.33	9.10	25,200	5,494	18.5	1.40	19,706	30.0	75.0	0.00	0.00	72.0	52.0	16.7		Viton Stinger
HSVE-070	03/28/16	Zone 6	N. Olive	NA	NA	12.81	8.60	13.08		10.20												33.3		Viton Stinger
HSVE-071	10/05/15	Zone 6	Rand	ND	17.50	25.48	17.58	25.13	-0.08													16.7		Viton Stinger
HSVE-071	10/13/15	Zone 6	Rand	ND	17.94	25.53	17.58	25.13	0.36	18.50	6,720	1,358	17.8	2.50	5,362	4.00	128	0.00	0.00	89.0	68.0	16.7		Viton Stinger
HSVE-071	10/15/15	Zone 6	Rand	NA	NA	25.53	17.58	25.13		18.50												0		Viton Stinger
HSVE-071	10/27/15	Zone 6	Rand	ND	22.10	25.55	17.58	25.13	4.52													0		Viton Stinger
HSVE-071	11/03/15	Zone 6	Rand	NA	NA	25.55	17.58	25.13		18.50												16.7		Viton Stinger
HSVE-071	11/10/15	Zone 6	Rand	ND	19.47	25.50	17.58	25.13	1.89													16.7		Viton Stinger
HSVE-071	11/17/15	Zone 6	Rand	ND	18.30	25.45	17.58	25.13	0.72	18.50	19,800	6,839	17.1	2.80	12,961	13.0	168	0.00	0.00	116	58.0	33.3		Viton Stinger
HSVE-071	11/23/15	Zone 6	Rand	ND	20.63	25.50	17.58	25.13	3.05													33.3		Viton Stinger
HSVE-071	11/30/15	Zone 6	Rand	NA	NA	25.50	17.58	25.13		18.50												50		Viton Stinger

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-071	12/01/15	Zone 6	Rand	ND	18.40	25.50	17.58	25.13	0.82													50		Viton Stinger
HSVE-071	12/08/15	Zone 6	Rand	ND	19.20	22.50	17.58	25.13	1.62	18.50	12,300	6,159	18.2	2.00	6,141	13.0	218	7.42	0.11	122	51.0	50		Viton Stinger
HSVE-071	12/28/15	Zone 6	Rand	NA	NA	22.50	17.58	25.13		18.50												0		Viton Stinger
HSVE-071	01/05/16	Zone 6	Rand	ND	11.46	25.50	17.58	25.13	-6.12													0		Viton Stinger
HSVE-071	01/12/16	Zone 6	Rand	ND	13.25	21.55	17.58	25.13	-4.33	18.50												0		Viton Stinger
HSVE-071	01/25/16	Zone 6	Rand	ND	16.15	25.50	17.58	25.13	-1.43													0		Viton Stinger
HSVE-071	02/09/16	Zone 6	Rand	ND	18.45	22.60	17.58	25.13	0.87													0		Viton Stinger
HSVE-071	02/23/16	Zone 6	Rand	ND	19.60	25.50	17.58	25.13	2.02	18.50	35.0	10.7	20.7	0.20	24.3	0.00	3.00					0		Viton Stinger
HSVE-071	03/07/16	Zone 6	Rand	ND	19.70	25.55	17.58	25.13	2.12													0		Viton Stinger
HSVE-071	03/22/16	Zone 6	Rand	ND	20.10	25.37	17.58	25.13	2.52	18.50	8,220	3,450	2.70	6.10	4,770	14.0	7.00					0		Viton Stinger
HSVE-071	03/28/16	Zone 6	Rand	NA	NA	25.37	17.58	25.13		18.50												16.7		Viton Stinger
HSVE-072	10/01/15	Zone 6	Rand	NA	NA	22.57	17.70	22.19		18.40												0		Viton Stinger
HSVE-072	10/05/15	Zone 6	Rand	ND	20.96	22.58	17.70	22.19	3.26													0		Viton Stinger
HSVE-072	10/13/15	Zone 6	Rand	ND	21.30	22.58	17.70	22.19	3.60	18.40	21.0	16.7	20.5	0.20	4.35	0.00	4.00					0		Viton Stinger
HSVE-072	10/27/15	Zone 6	Rand	ND	21.62	22.58	17.70	22.19	3.92													0		Viton Stinger
HSVE-072	11/10/15	Zone 6	Rand	ND	21.76	22.58	17.70	22.19	4.06													0		Viton Stinger
HSVE-072	11/17/15	Zone 6	Rand	ND	21.14	22.57	17.70	22.19	3.44	18.40	143	113	20.3	0.30	30.0	0.00	23.0					0		Viton Stinger
HSVE-072	11/19/15	Zone 6	Rand	NA	NA	22.57	17.70	22.19		18.40												0		Viton Stinger
HSVE-072	11/30/15	Zone 6	Rand	NA	NA	22.57	17.70	22.19		18.40												16.7		Viton Stinger
HSVE-072	12/01/15	Zone 6	Rand	ND	16.70	22.58	17.70	22.19	-1.00													16.7		Viton Stinger
HSVE-072	12/03/15	Zone 6	Rand	NA	NA	22.58	17.70	22.19		18.40												0		Viton Stinger
HSVE-072	12/08/15	Zone 6	Rand	ND	20.47	22.55	17.70	22.19	2.77	18.40	105	61.3	18.6	1.10	43.7	0.00	14.0					0		Viton Stinger
HSVE-072	12/29/15	Zone 6	Rand	NA	7.38	22.58	17.70	22.19	-10.32	18.40												0		Viton Stinger
HSVE-072	01/05/16	Zone 6	Rand	ND	11.74	22.60	17.70	22.19	-5.96													0		Viton Stinger
HSVE-072	01/12/16	Zone 6	Rand	ND	14.00	22.58	17.70	22.19	-3.70	18.40												0		Viton Stinger
HSVE-072	01/25/16	Zone 6	Rand	ND	17.02	22.60	17.70	22.19	-0.68													0		Viton Stinger
HSVE-072	02/09/16	Zone 6	Rand	ND	18.17	22.60	17.70	22.19	0.47													0		Viton Stinger
HSVE-072	02/23/16	Zone 6	Rand	ND	19.97	22.60	17.70	22.19	2.27	18.40	11.0	0.00	19.7	0.60	11.0	0.00	5.00					0		Viton Stinger
HSVE-072	03/07/16	Zone 6	Rand	ND	20.10	22.62	17.70	22.19	2.40													0		Viton Stinger
HSVE-072	03/22/16	Zone 6	Rand	ND	20.38	22.51	17.70	22.19	2.68	18.40	18.0	18.0	20.8	0.00	0.00	0.00	5.00					0		Viton Stinger
HSVE-073	10/05/15	Zone 6	Rand	ND	13.32	21.35	17.55	21.07	-4.23													0	0	Straw Stinger
HSVE-073	10/13/15	Zone 6	Rand	ND	14.12	21.40	17.55	21.07	-3.43													0	0	Straw Stinger
HSVE-073	10/27/15	Zone 6	Rand	ND	14.78	21.40	17.55	21.07	-2.77													0	0	Straw Stinger
HSVE-073	11/10/15	Zone 6	Rand	ND	15.15	21.35	17.55	21.07	-2.40													0	0	Straw Stinger
HSVE-073	11/17/15	Zone 6	Rand	ND	14.88	21.35	17.55	21.07	-2.67													0	0	Straw Stinger
HSVE-073	12/01/15	Zone 6	Rand	ND	10.64	21.36	17.55	21.07	-6.91													0	0	Straw Stinger
HSVE-073	12/08/15	Zone 6	Rand	ND	11.40	21.38	17.55	21.07	-6.15													0	0	Straw Stinger
HSVE-073	01/05/16	Zone 6	Rand	ND	2.02	21.43	17.55	21.07	-15.53													0	0	Straw Stinger
HSVE-073	01/12/16	Zone 6	Rand	ND	3.45	21.40	17.55	21.07	-14.10													0	0	Straw Stinger
HSVE-073	01/25/16	Zone 6	Rand	ND	6.30	21.42	17.55	21.07	-11.25													0	0	Straw Stinger
HSVE-073	02/09/16	Zone 6	Rand	ND	7.95	21.40	17.55	21.07	-9.60													0	0	Straw Stinger
HSVE-073	02/23/16	Zone 6	Rand	ND	9.20	21.43	17.55	21.07	-8.35													0	0	Straw Stinger
HSVE-073	03/07/16	Zone 6	Rand	ND	9.30	21.35	17.55	21.07	-8.25													0	0	Straw Stinger
HSVE-073	03/22/16	Zone 6	Rand	ND	10.08	21.34	17.55	21.07	-7.47													0	0	Straw Stinger
HSVE-074	10/01/15	Zone 6	N. Olive	NA	NA	12.70	9.49	13.00		10.20												0		Viton Stinger
HSVE-074	10/05/15	Zone 6	N. Olive	ND	Dry	12.70	9.49	13.00	3.51													0		Viton Stinger
HSVE-074	10/13/15	Zone 6	N. Olive	ND	Dry	12.70	9.49	13.00	3.51	10.20	8.00	8.00	16.8	1.00	0.00	0.00	3.00					0		Viton Stinger
HSVE-074	10/27/15	Zone 6	N. Olive	ND	Dry	12.67	9.49	13.00	3.51													0		Viton Stinger
HSVE-074	11/10/15	Zone 6	N. Olive	ND	Dry	12.66	9.49	13.00	3.51													0		Viton Stinger
HSVE-074	11/18/15	Zone 6	N. Olive	ND	Dry	12.70	9.49	13.00	3.51	10.20	530	530	13.8	1.00	0.00	0.00	22.0					0		Viton Stinger
HSVE-074	11/20/15	Zone 6	N. Olive	NA	NA	12.70	9.49	13.00		10.20												16.7		Viton Stinger
HSVE-074	11/30/15	Zone 6	N. Olive	NA	NA	12.70	9.49	13.00		10.20												33.3		Viton Stinger
HSVE-074	12/01/15	Zone 6	N. Olive	ND	10.30	12.72	9.49	13.00	0.81													33.3		Viton Stinger
HSVE-074	12/08/15	Zone 6	N. Olive	ND	10.42	12.58	9.49	13.00	0.93	10.20	37.0	37.0	20.6	0.50	0.00	0.00	10.0	23.8	0.98	75.0	55.0	33.3		Viton Stinger
HSVE-074	12/29/15	Zone 6	N. Olive	NA	NA	12.58	9.49	13.00		10.20												0		Viton Stinger
HSVE-074	01/05/16	Zone 6	N. Olive	ND	2.35	13.50	9.49	13.00	-7.14													0		Viton Stinger
HSVE-074	01/12/16	Zone 6	N. Olive	ND	3.21	13.50	9.49	13.00	-6.28	10.20												0		Viton Stinger
HSVE-074	01/25/16	Zone 6	N. Olive	ND	6.86	21.42	9.49	13.00	-2.63													0		Viton Stinger

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-074	02/09/16	Zone 6	N. Olive	ND	7.95	13.50	9.49	13.00	-1.54													0		Viton Stinger
HSVE-074	02/23/16	Zone 6	N. Olive	ND	9.76	13.50	9.49	13.00	0.27	10.20	3.00	3.00	17.8	0.50	0.00	0.00	2.00					0		Viton Stinger
HSVE-074	03/07/16	Zone 6	N. Olive	ND	9.86	12.70	9.49	13.00	0.37													0		Viton Stinger
HSVE-074	03/22/16	Zone 6	N. Olive	ND	10.56	12.70	9.49	13.00	1.07	10.20	9.00	9.00	17.5	0.50	0.00	0.00	4.00					0		Viton Stinger
HSVE-075	10/05/15	Zone 6	Rand	ND	14.45	23.50	19.54	23.06	-5.09													0		None
HSVE-075	10/13/15	Zone 6	Rand	ND	14.63	23.48	19.54	23.06	-4.91													0		None
HSVE-075	10/27/15	Zone 6	Rand	ND	15.45	23.52	19.54	23.06	-4.09													0		None
HSVE-075	11/10/15	Zone 6	Rand	ND	15.65	23.46	19.54	23.06	-3.89													0		None
HSVE-075	11/18/15	Zone 6	Rand	ND	15.10	23.52	19.54	23.06	-4.44													0		None
HSVE-075	12/01/15	Zone 6	Rand	ND	11.58	23.50	19.54	23.06	-7.96													0		None
HSVE-075	12/08/15	Zone 6	Rand	ND	11.54	23.50	19.54	23.06	-8.00													0		None
HSVE-075	01/05/16	Zone 6	Rand	ND	3.61	23.56	19.54	23.06	-15.93													0		None
HSVE-075	01/12/16	Zone 6	Rand	ND	4.23	23.56	19.54	23.06	-15.31													0		None
HSVE-075	01/25/16	Zone 6	Rand	ND	7.82	23.56	19.54	23.06	-11.72													0		None
HSVE-075	02/09/16	Zone 6	Rand	ND	9.06	23.56	19.54	23.06	-10.48													0		None
HSVE-075	02/23/16	Zone 6	Rand	ND	10.43	23.56	19.54	23.06	-9.11													0		None
HSVE-075	03/07/16	Zone 6	Rand	ND	10.65	23.55	19.54	23.06	-8.89													0		None
HSVE-075	03/22/16	Zone 6	Rand	ND	11.30	23.40	19.54	23.06	-8.24													0		None
HSVE-076	10/05/15	Zone 6	Rand	ND	17.55	22.45	18.66	22.17	-1.11													0		Viton Stinger
HSVE-076	10/13/15	Zone 6	Rand	ND	17.80	22.55	18.66	22.17	-0.86													0		Viton Stinger
HSVE-076	10/27/15	Zone 6	Rand	ND	18.50	22.54	18.66	22.17	-0.16													0		Viton Stinger
HSVE-076	11/10/15	Zone 6	Rand	ND	18.78	22.46	18.66	22.17	0.12													0		Viton Stinger
HSVE-076	11/18/15	Zone 6	Rand	ND	18.00	22.45	18.66	22.17	-0.66													0		Viton Stinger
HSVE-076	12/01/15	Zone 6	Rand	ND	15.90	22.48	18.66	22.17	-2.76													0		Viton Stinger
HSVE-076	12/08/15	Zone 6	Rand	ND	15.70	22.54	18.66	22.17	-2.96													0		Viton Stinger
HSVE-076	01/05/16	Zone 6	Rand	ND	6.80	22.65	18.66	22.17	-11.86													0		Viton Stinger
HSVE-076	01/12/16	Zone 6	Rand	ND	11.37	22.60	18.66	22.17	-7.29													0		Viton Stinger
HSVE-076	01/26/16	Zone 6	Rand	ND	13.92	22.57	18.66	22.17	-4.74													0		Viton Stinger
HSVE-076	02/09/16	Zone 6	Rand	ND	13.46	22.60	18.66	22.17	-5.20													0		Viton Stinger
HSVE-076	02/23/16	Zone 6	Rand	ND	15.05	22.60	18.66	22.17	-3.61													0		Viton Stinger
HSVE-076	03/08/16	Zone 6	Rand	ND	19.40	22.60	18.66	22.17	0.74													0		Viton Stinger
HSVE-076	03/22/16	Zone 6	Rand	ND	19.27	22.48	18.66	22.17	0.61		38,300	16,976	19.6	0.90	21,324	37.0	205	16.9	0.57	118	55.0	50		Viton Stinger
HSVE-077	10/05/15	Zone 6	N. Olive	ND	10.72	13.20	8.65	13.13	2.07													100		Viton Stinger
HSVE-077	10/13/15	Zone 6	N. Olive	ND	10.93	13.07	8.65	13.13	2.28	9.40	86,000	42,500	15.6	3.80	43,500	57.0	219	8.14	0.14	129	67.0	100		Viton Stinger
HSVE-077	10/27/15	Zone 6	N. Olive	ND	11.00	13.18	8.65	13.13	2.35													100		Viton Stinger
HSVE-077	11/10/15	Zone 6	N. Olive	ND	11.05	13.12	8.65	13.13	2.40													100		Viton Stinger
HSVE-077	12/02/15	Zone 6	N. Olive	ND	10.12	12.94	8.65	13.13	1.47													100		Viton Stinger
HSVE-077	01/14/16	Zone 6	N. Olive	ND	9.78	12.85	8.65	13.13	1.13	9.40	97,800	60,617	17.0	2.90	37,183	54.0	347	6.86	0.09	114	43.0	100		Viton Stinger
HSVE-077	01/26/16	Zone 6	N. Olive	ND	10.18	12.98	8.65	13.13	1.53													100		Viton Stinger
HSVE-077	02/09/16	Zone 6	N. Olive	ND	10.04	13.35	8.65	13.13	1.39													100		Viton Stinger
HSVE-077	02/23/16	Zone 6	N. Olive	ND	10.65	13.14	8.65	13.13	2.00	9.40	110,000	55,500	14.4	3.60	54,500	75.0	194	10.3	0.21	121	46.0	100		Viton Stinger
HSVE-077	03/22/16	Zone 6	N. Olive	ND	9.68	13.13	8.65	13.13	1.03	9.40	114,000	58,550	15.4	4.00	55,450	OVR	197	10.3	0.21	121	50.0	100		Viton Stinger
HSVE-078	10/05/15	Zone 5	Rand	ND	20.22	20.38	17.55	21.08	2.67													0		Viton Stinger
HSVE-078	10/13/15	Zone 5	Rand	ND	Dry	20.50	17.55	21.08	3.53	18.30	520,000	300,000	2.20	14.0	220,000	OVR	273					0		Viton Stinger
HSVE-078	10/22/15	Zone 5	Rand							20.30												0		Viton Stinger
HSVE-078	10/27/15	Zone 5	Rand	ND	20.00	21.00	17.55	21.08	2.45													0		Viton Stinger
HSVE-078	11/03/15	Zone 5	Rand	NA	NA	21.00	17.55	21.08		20.30												50		Viton Stinger
HSVE-078	11/10/15	Zone 5	Rand	ND	13.50	20.70	17.55	21.08	-4.05													50		Viton Stinger
HSVE-078	11/11/15	Zone 5	Rand	NA	NA	20.70	17.55	21.08		20.30												0		Viton Stinger
HSVE-078	11/18/15	Zone 5	Rand	ND	Dry	20.60	17.55	21.08	3.53	20.30	1,000,000	742,000	3.10	13.8	258,000	OVR	345					0		Viton Stinger
HSVE-078	11/20/15	Zone 5	Rand	NA	NA	20.60	17.55	21.08		19.10												16.7		Viton Stinger
HSVE-078	12/01/15	Zone 5	Rand	ND	20.66	20.68	17.55	21.08	3.11													16.7		Viton Stinger
HSVE-078	12/03/15	Zone 5	Rand	NA	NA	20.68	17.55	21.08		19.10												33.3		Viton Stinger
HSVE-078	12/08/15	Zone 5	Rand	ND	14.40	20.72	17.55	21.08	-3.15	19.10								0.00	0.00	123	48.0	50		Viton Stinger
HSVE-078	12/14/15	Zone 5	Rand	NA	NA	20.72	17.55	21.08		19.10												0		Viton Stinger
HSVE-078	01/05/16	Zone 5	Rand	ND	18.40	20.66	17.55	21.08	0.85													0		Viton Stinger
HSVE-078	01/12/16	Zone 5	Rand	ND	19.62	20.70	17.55	21.08	2.07	19.10	233,000	121,000	15.1	5.10	112,000	OVR	158					0		Viton Stinger
HSVE-078	01/15/16	Zone 5	Rand	NA	NA	20.70	17.55	21.08		19.10												16.7		Viton Stinger

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-078	01/19/16	Zone 5	Rand	ND	18.50	20.65	17.55	21.08	0.95													16.7		Viton Stinger
HSVE-078	01/25/16	Zone 5	Rand	ND	18.54	20.66	17.55	21.08	0.99													16.7		Viton Stinger
HSVE-078	02/09/16	Zone 5	Rand	ND	15.30	20.68	17.55	21.08	-2.25													16.7		Viton Stinger
HSVE-078	02/23/16	Zone 5	Rand	ND	13.45	20.66	17.55	21.08	-4.10	19.10								8.72	0.15	122	45.0	50		Viton Stinger
HSVE-078	03/01/16	Zone 5	Rand	NA	NA	20.66	17.55	21.08		19.10												33.3		Viton Stinger
HSVE-078	03/07/16	Zone 5	Rand	ND	12.20	20.55	17.55	21.08	-5.35													33.3		Viton Stinger
HSVE-078	03/22/16	Zone 5	Rand	ND	14.08	20.46	17.55	21.08	-3.47	19.10								0.00	0.00	122	53.0	33.3		Viton Stinger
HSVE-078	03/28/16	Zone 5	Rand	NA	NA	20.46	17.55	21.08		19.10												0		Viton Stinger
HSVE-079	10/06/15	Zone 5	Rand	ND	11.94	20.27	17.23	20.75	-5.29													16.7		None
HSVE-079	10/14/15	Zone 5	Rand	ND	10.82	20.10	17.23	20.75	-6.41									0.00	0.00	137	67.0	33.3		None
HSVE-079	10/15/15	Zone 5	Rand	NA	NA	20.10	17.23	20.75														0		None
HSVE-079	10/27/15	Zone 5	Rand	ND	20.02	21.05	17.23	20.75	2.79													0		None
HSVE-079	11/03/15	Zone 5	Rand	NA	NA	21.05	17.23	20.75														16.7		None
HSVE-079	11/10/15	Zone 5	Rand	ND	12.10	20.14	17.23	20.75	-5.13													16.7		None
HSVE-079	11/11/15	Zone 5	Rand	NA	NA	20.14	17.23	20.75														0		None
HSVE-079	11/18/15	Zone 5	Rand	ND	18.74	20.33	17.23	20.75	1.51		380,000	200,000	4.00	12.7	180,000	OVR	300					0		None
HSVE-079	12/01/15	Zone 5	Rand	ND	18.30	20.40	17.23	20.75	1.07													0		None
HSVE-079	12/09/15	Zone 5	Rand	ND	19.95	20.20	17.23	20.75	2.72		37,200	34,313	20.2	0.20	2,887	20.0	800					0		None
HSVE-079	12/15/15	Zone 5	Rand	NA	NA	20.20	17.23	20.75														16.7		None
HSVE-079	12/22/15	Zone 5	Rand	ND	10.70	20.37	17.23	20.75	-6.53													16.7		None
HSVE-079	12/24/15	Zone 5	Rand	NA	NA	20.37	17.23	20.75														0		None
HSVE-079	01/05/16	Zone 5	Rand	15.40	15.50	20.70	17.23	20.75	-1.83													0		None
HSVE-079	01/13/16	Zone 5	Rand	16.55	16.67	20.25	17.23	20.75	-0.68													0		None
HSVE-079	01/26/16	Zone 5	Rand	ND	19.52	20.70	17.23	20.75	2.29													0		None
HSVE-079	02/09/16	Zone 5	Rand	ND	20.07	20.72	17.23	20.75	2.84													0		None
HSVE-079	02/12/16	Zone 5	Rand	NA	NA	20.72	17.23	20.75														16.7		None
HSVE-079	02/23/16	Zone 5	Rand	ND	11.16	20.70	17.23	20.75	-6.07									0.00	0.00	120	46.0	16.7		None
HSVE-079	03/01/16	Zone 5	Rand	NA	NA	20.70	17.23	20.75														0		None
HSVE-079	03/07/16	Zone 5	Rand	ND	20.05	20.20	17.23	20.75	2.82													0		None
HSVE-079	03/22/16	Zone 5	Rand	20.04	20.06	20.70	17.23	20.75	2.81		905,000	581,000	4.10	13.4	324,000	OVR	180					0		None
HSVE-079	03/28/16	Zone 5	Rand	NA	NA	20.70	17.23	20.75														16.7		None
HSVE-080	10/06/15	Zone 5	N. Olive	ND	9.38	13.75	8.67	13.16	0.71													16.7		None
HSVE-080	11/10/15	Zone 5	N. Olive	ND	9.00	13.74	8.67	13.16	0.33													16.7		None
HSVE-080	01/05/16	Zone 5	N. Olive	ND	7.33	13.61	8.67	13.16	-1.34													16.7		None
HSVE-080	01/13/16	Zone 5	N. Olive	ND	7.45	13.72	8.67	13.16	-1.22		2,140	668	20.4	0.40	1,472	4.00	85.0	6.92	0.09	114	34.0	50		None
HSVE-080	01/26/16	Zone 5	N. Olive	ND	7.84	13.60	8.67	13.16	-0.83													50		None
HSVE-080	02/09/16	Zone 5	N. Olive	ND	8.00	13.60	8.67	13.16	-0.67													50		None
HSVE-080	02/23/16	Zone 5	N. Olive	ND	8.10	13.61	8.67	13.16	-0.57									0.00	0.00	124	49.0	50		None
HSVE-080	03/01/16	Zone 5	N. Olive	NA	NA	13.61	8.67	13.16														0		None
HSVE-080	03/07/16	Zone 5	N. Olive	ND	13.46	13.69	8.67	13.16	4.49													0		None
HSVE-080	03/22/16	Zone 5	N. Olive	ND	Dry	13.68	8.67	13.16	4.49		13,750	13,300	4.50	10.7	450	14.0	183					0		None
HSVE-080	03/28/16	Zone 5	N. Olive	NA	NA	13.68	8.67	13.16														16.7		None
HSVE-081	10/06/15	Zone 5	Rand	ND	21.40	21.70	18.42	21.94	2.98													0		None
HSVE-081	10/14/15	Zone 5	Rand	ND	21.47	21.70	18.42	21.94	3.05		433,000	280,000	4.20	13.2	153,000	OVR	278					0		None
HSVE-081	10/19/15	Zone 5	Rand	NA	NA	21.70	18.42	21.94														50		None
HSVE-081	10/27/15	Zone 5	Rand	ND	Dry	21.85	18.42	21.94	3.52													50		None
HSVE-081	11/03/15	Zone 5	Rand	NA	NA	21.85	18.42	21.94														100		None
HSVE-081	11/10/15	Zone 5	Rand	ND	13.30	21.85	18.42	21.94	-5.12													100		None
HSVE-081	11/11/15	Zone 5	Rand	NA	NA	21.85	18.42	21.94														0		None
HSVE-081	11/18/15	Zone 5	Rand	ND	Dry	21.75	18.42	21.94	3.52		730,000	515,000	0.80	16.7	215,000	OVR	422					0		None
HSVE-081	11/20/15	Zone 5	Rand	NA	NA	21.75	18.42	21.94														16.7		None
HSVE-081	12/01/15	Zone 5	Rand	ND	16.60	21.80	18.42	21.94	-1.82													16.7		None
HSVE-081	12/03/15	Zone 5	Rand	NA	NA	21.80	18.42	21.94														0		None
HSVE-081	12/09/15	Zone 5	Rand	ND	21.22	21.90	18.42	21.94	2.80		504,000	326,000	2.60	15.0	178,000	OVR	290					0		None
HSVE-081	12/15/15	Zone 5	Rand	NA	NA	21.90	18.42	21.94														16.7		None
HSVE-081	12/22/15	Zone 5	Rand	ND	17.40	21.84	18.42	21.94	-1.02													16.7		None
HSVE-081	12/29/15	Zone 5	Rand	NA	NA	21.84	18.42	21.94														0		None
HSVE-081	01/05/16	Zone 5	Rand	13.98	16.15	22.52	18.42	21.94	-4.44													0		None

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-081	01/13/16	Zone 5	Rand	ND	19.20	21.85	18.42	21.94	0.78		59,000	27,400	12.4	4.80	31,600	85.0	190					0		None
HSVE-081	01/19/16	Zone 5	Rand	ND	14.60	22.51	18.42	21.94	-3.82													0		None
HSVE-081	01/21/16	Zone 5	Rand	NA	NA	22.51	18.42	21.94														0		None
HSVE-081	01/26/16	Zone 5	Rand	ND	19.55	22.52	18.42	21.94	1.13													0		None
HSVE-081	02/09/16	Zone 5	Rand	ND	21.06	22.50	18.42	21.94	2.64													0		None
HSVE-081	02/23/16	Zone 5	Rand	ND	15.50	22.52	18.42	21.94	-2.92									26.7	1.28	94.0	45.0	16.7		None
HSVE-081	03/01/16	Zone 5	Rand	NA	NA	22.52	18.42	21.94														0		None
HSVE-081	03/07/16	Zone 5	Rand	ND	21.32	21.80	18.42	21.94	2.90													0		None
HSVE-081	03/22/16	Zone 5	Rand	ND	21.40	21.83	18.42	21.94	2.98		1,000,000	483,000	1.20	17.7	517,000	OVR	166					0		None
HSVE-081	03/28/16	Zone 5	Rand	NA	NA	21.83	18.42	21.94														16.7		None
HSVE-082	10/01/15	Zone 5	N. Olive	NA	NA	13.29	9.62	13.13														0	100	Straw Stinger
HSVE-082	10/06/15	Zone 5	N. Olive	ND	12.96	13.30	9.62	13.13	3.34													0		Straw Stinger
HSVE-082	10/14/15	Zone 5	N. Olive	ND	12.95	13.30	9.62	13.13	3.33		700	321	20.2	0.50	379	0.00	67.0			138		0	100	Straw Stinger
HSVE-082	10/19/15	Zone 5	N. Olive	NA	NA	13.30	9.62	13.13														0	100	Straw Stinger
HSVE-082	10/20/15	Zone 5	N. Olive							11.75												0	100	Straw Stinger
HSVE-082	10/27/15	Zone 5	N. Olive	ND	13.10	13.40	9.62	13.13	3.48													0	100	Straw Stinger
HSVE-082	11/10/15	Zone 5	N. Olive	ND	13.02	13.40	9.62	13.13	3.40													0	100	Straw Stinger
HSVE-082	11/18/15	Zone 5	N. Olive	ND	12.98	13.40	9.62	13.13	3.36		1,660	878	18.8	1.00	782	0.00	182					0	100	Straw Stinger
HSVE-082	12/01/15	Zone 5	N. Olive	ND	12.98	13.40	9.62	13.13	3.36													0	100	Straw Stinger
HSVE-082	12/09/15	Zone 5	N. Olive	ND	13.05	13.40	9.62	13.13	3.43		800	392	18.9	0.80	408	0.00	81.0			136	46.0	0	100	Straw Stinger
HSVE-082	12/29/15	Zone 5	N. Olive	NA	11.50	13.30	9.62	13.13	1.88													0	100	Straw Stinger
HSVE-082	12/30/15	Zone 5	N. Olive							10.00												0	100	Straw Stinger
HSVE-082	01/05/16	Zone 5	N. Olive	ND	10.65	13.38	9.62	13.13	1.03													0	100	Straw Stinger
HSVE-082	01/13/16	Zone 5	N. Olive	ND	10.64	13.33	9.62	13.13	1.02		1,660	649	20.2	0.60	1,011	0.00	133			131	40.0	0	100	Straw Stinger
HSVE-082	01/26/16	Zone 5	N. Olive	ND	10.70	13.38	9.62	13.13	1.08													0	100	Straw Stinger
HSVE-082	02/09/16	Zone 5	N. Olive	ND	10.69	13.40	9.62	13.13	1.07													0	100	Straw Stinger
HSVE-082	02/23/16	Zone 5	N. Olive	ND	10.80	13.38	9.62	13.13	1.18		62.0	62.0	20.8	0.00	0.00	0.00	17.0			132	51.0	0	100	Straw Stinger
HSVE-082	03/07/16	Zone 5	N. Olive	ND	10.85	13.25	9.62	13.13	1.23													0	100	Straw Stinger
HSVE-082	03/22/16	Zone 5	N. Olive	ND	10.70	13.24	9.62	13.13	1.08		4,478	887	20.4	0.40	3,591	5.00	123			136	60.0	0	100	Straw Stinger
HSVE-083	10/06/15	Zone 5	Rand	ND	14.00	22.50	19.17	22.67	-5.17													33.3		Viton Stinger
HSVE-083	10/14/15	Zone 5	Rand	ND	19.50	22.28	19.17	22.67	0.33	20.50	25,100	12,886	19.9	0.80	12,214	17.0	488	27.9	1.71	138	69.0	33.3		Viton Stinger
HSVE-083	10/27/15	Zone 5	Rand	ND	15.38	22.23	19.17	22.67	-3.79													33.3		Viton Stinger
HSVE-083	11/10/15	Zone 5	Rand	ND	14.40	22.25	19.17	22.67	-4.77													33.3		Viton Stinger
HSVE-083	11/18/15	Zone 5	Rand	ND	18.60	22.11	19.17	22.67	-0.57	20.50	1,650	1,395	20.8	0.10	255	0.00	300	35.1	2.68	142	59.0	50		Viton Stinger
HSVE-083	12/01/15	Zone 5	Rand	ND	22.30	22.35	19.17	22.67	3.13													50		Viton Stinger
HSVE-083	12/09/15	Zone 5	Rand	ND	19.55	22.10	19.17	22.67	0.38	20.50	910	735	20.8	0.20	175	0.00	190	33.1	2.29	136	48.0	50		Viton Stinger
HSVE-083	01/05/16	Zone 5	Rand	ND	7.19	22.46	19.17	22.67	-11.98													50		Viton Stinger
HSVE-083	01/13/16	Zone 5	Rand	14.60	14.80	21.93	19.17	22.67	-4.57	20.50								32.9	2.18	133	34.0	50		Viton Stinger
HSVE-083	01/26/16	Zone 5	Rand	ND	14.99	22.46	19.17	22.67	-4.18													50		Viton Stinger
HSVE-083	02/09/16	Zone 5	Rand	ND	15.60	22.40	19.17	22.67	-3.57													50		Viton Stinger
HSVE-083	02/23/16	Zone 5	Rand	ND	18.20	22.46	19.17	22.67	-0.97	20.50								31.0	1.98	132	50.0	33.3		Viton Stinger
HSVE-083	03/01/16	Zone 5	Rand	NA	NA	22.46	19.17	22.67		20.50												33.3		Viton Stinger
HSVE-083	03/07/16	Zone 5	Rand	ND	13.94	22.00	19.17	22.67	-5.23													33.3		Viton Stinger
HSVE-083	03/22/16	Zone 5	Rand	ND	13.40	21.96	19.17	22.67	-5.77	20.50								30.4	1.69	92.0	57.0	33.3		Viton Stinger
HSVE-084	10/01/15	Zone 5	Rand	ND	12.00	23.30	19.77	23.29	-7.77									0.00	0.00	125	77.0	33.3		None
HSVE-084	10/02/15	Zone 5	Rand	NA	NA	23.30	19.77	23.29														0		None
HSVE-084	10/06/15	Zone 5	Rand	ND	19.12	23.13	19.77	23.29	-0.65													0		None
HSVE-084	10/14/15	Zone 5	Rand	ND	21.63	23.17	19.77	23.29	1.86		54,600	19,300	11.2	8.80	35,300	36.0	122					0		None
HSVE-084	10/27/15	Zone 5	Rand	ND	21.37	23.20	19.77	23.29	1.60													0		None
HSVE-084	11/03/15	Zone 5	Rand	NA	NA	23.20	19.77	23.29														16.7		None
HSVE-084	11/10/15	Zone 5	Rand	ND	21.05	23.18	19.77	23.29	1.28													16.7		None
HSVE-084	11/18/15	Zone 5	Rand	ND	13.80	22.13	19.77	23.29	-5.97													0		None
HSVE-084	12/01/15	Zone 5	Rand	ND	21.94	23.26	19.77	23.29	2.17													0		None
HSVE-084	12/03/15	Zone 5	Rand	NA	NA	23.26	19.77	23.29														16.7		None
HSVE-084	12/09/15	Zone 5	Rand	ND	22.00	23.15	19.77	23.29	2.23		58,200	31,862	16.2	6.10	26,338	32.0	555	0.00	0.00	26.0	47.0	16.7		None
HSVE-084	12/14/15	Zone 5	Rand	NA	NA	23.15	19.77	23.29														16.7		None
HSVE-084	12/22/15	Zone 5	Rand	ND	19.75	23.18	19.77	23.29	-0.02													16.7		None
HSVE-084	12/29/15	Zone 5	Rand	NA	NA	23.18	19.77	23.29														0		None

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-084	01/05/16	Zone 5	Rand	ND	20.11	23.70	19.77	23.29	0.34													0		None
HSVE-084	01/13/16	Zone 5	Rand	19.40	19.45	23.18	19.77	23.29	-0.37													0		None
HSVE-084	01/26/16	Zone 5	Rand	20.45	21.00	23.26	19.77	23.29	0.68													0		None
HSVE-084	02/08/16	Zone 5	Rand	ND	14.92	23.22	19.77	23.29	-4.85													0		None
HSVE-084	02/23/16	Zone 5	Rand	ND	22.15	23.70	19.77	23.29	2.38		634,000	296,000	3.50	15.5	338,000	OVR	822	0.00	0.00	29.0	49.0	16.7		None
HSVE-084	03/08/16	Zone 5	Rand	ND	17.30	23.15	19.77	23.29	-2.47													16.7		None
HSVE-084	03/22/16	Zone 5	Rand	ND	21.40	23.20	19.77	23.29	1.63		7,647	2,615	20.3	0.50	5,032	8.00	302	0.00	0.00	116	57.0	16.7		None
HSVE-085	10/01/15	Zone 5	Rand	NA	NA	22.52	18.38	22.38		19.40												0		Viton Stinger
HSVE-085	10/06/15	Zone 5	Rand	ND	22.29	22.48	18.38	22.38	3.91													0		Viton Stinger
HSVE-085	10/14/15	Zone 5	Rand	ND	22.30	22.52	18.38	22.38	3.92	19.40	20,000	5,000	16.2	3.70	15,000	13.0	212					0		Viton Stinger
HSVE-085	10/19/15	Zone 5	Rand	NA	NA	22.52	18.38	22.38		19.40												50		Viton Stinger
HSVE-085	10/27/15	Zone 5	Rand	ND	19.92	22.60	18.38	22.38	1.54													50		Viton Stinger
HSVE-085	11/10/15	Zone 5	Rand	ND	20.17	22.49	18.38	22.38	1.79													50		Viton Stinger
HSVE-085	11/18/15	Zone 5	Rand	ND	20.00	22.50	18.38	22.38	1.62	19.40	11,800	8,673	17.6	3.00	3,127	11.0	643	5.71	0.07	137	60.0	50		Viton Stinger
HSVE-085	11/23/15	Zone 5	Rand	ND	20.26	22.50	18.38	22.38	1.88													50		Viton Stinger
HSVE-085	12/02/15	Zone 5	Rand	ND	20.66	22.50	18.38	22.38	2.28													50		Viton Stinger
HSVE-085	12/03/15	Zone 5	Rand	NA	NA	22.50	18.38	22.38		19.40												66.7		Viton Stinger
HSVE-085	12/09/15	Zone 5	Rand	ND	20.55	22.46	18.38	22.38	2.17	19.40	7,150	6,087	18.5	1.60	1,063	5.00	420	6.95	0.10	131	53.0	50		Viton Stinger
HSVE-085	12/14/15	Zone 5	Rand	NA	NA	22.46	18.38	22.38		19.40												100		Viton Stinger
HSVE-085	12/22/15	Zone 5	Rand	ND	20.62	22.50	18.38	22.38	2.24													100		Viton Stinger
HSVE-085	12/29/15	Zone 5	Rand	NA	19.42	22.45	18.38	22.38	1.04	19.40												100		Viton Stinger
HSVE-085	12/30/15	Zone 5	Rand							19.20												100		Viton Stinger
HSVE-085	01/05/16	Zone 5	Rand	ND	19.28	22.45	18.38	22.38	0.90													100		Viton Stinger
HSVE-085	01/13/16	Zone 5	Rand	ND	19.35	22.44	18.38	22.38	0.97	19.20	680	515	19.1	1.20	165	0.00	126	5.40	0.06	133	46.0	100		Viton Stinger
HSVE-085	01/26/16	Zone 5	Rand	ND	19.40	22.45	18.38	22.38	1.02													100		Viton Stinger
HSVE-085	02/08/16	Zone 5	Rand	ND	18.90	22.45	18.38	22.38	0.52													100		Viton Stinger
HSVE-085	02/25/16	Zone 5	Rand	ND	19.34	22.44	18.38	22.38	0.96	19.20	9,020	3,961	18.3	1.80	5,059	6.00	310	6.92	0.10	137	46.0	100		Viton Stinger
HSVE-085	03/08/16	Zone 5	Rand	ND	19.20	22.45	18.38	22.38	0.82													100		Viton Stinger
HSVE-085	03/22/16	Zone 5	Rand	ND	19.00	22.44	18.38	22.38	0.62	19.20	12,600	8,694	17.2	2.70	3,906	9.00	497	4.88	0.05	133	56.0	100		Viton Stinger
HSVE-085	03/28/16	Zone 5	Rand							20.00												100		Viton Stinger
HSVE-086	10/06/15	Zone 5	N. Olive	ND	10.20	13.32	8.47	12.95	1.73													100		Viton Stinger
HSVE-086	10/14/15	Zone 5	N. Olive	ND	10.59	13.29	8.47	12.95	2.12	9.70	130	92.9	20.5	0.10	37.1	0.00	25.0	32.2	2.18	129	64.0	100		Viton Stinger
HSVE-086	10/27/15	Zone 5	N. Olive	ND	10.33	13.42	8.47	12.95	1.86													100		Viton Stinger
HSVE-086	11/10/15	Zone 5	N. Olive	ND	10.05	13.30	8.47	12.95	1.58													100		Viton Stinger
HSVE-086	11/18/15	Zone 5	N. Olive	ND	12.40	13.25	8.47	12.95	3.93	9.70	312	304	20.7	0.10	8.45	0.00	76.0	25.9	1.42	135	56.0	100		Viton Stinger
HSVE-086	12/02/15	Zone 5	N. Olive	ND	12.66	12.68	8.47	12.95	4.19													100		Viton Stinger
HSVE-086	12/09/15	Zone 5	N. Olive	ND	10.58	13.00	8.47	12.95	2.11	9.70	160	160	20.8	0.60	0.00	0.00	35.0	31.0	1.93	125	50.0	100		Viton Stinger
HSVE-086	12/29/15	Zone 5	N. Olive	NA	10.40	13.24	8.47	12.95	1.93	9.70												100		Viton Stinger
HSVE-086	12/30/15	Zone 5	N. Olive							9.40												100		Viton Stinger
HSVE-086	01/05/16	Zone 5	N. Olive	ND	10.65	13.18	8.47	12.95	2.18													100		Viton Stinger
HSVE-086	01/13/16	Zone 5	N. Olive	ND	10.60	13.32	8.47	12.95	2.13	9.40	30.0	30.0	20.8	0.00	0.00	0.00	10.0	29.3	1.72	128	42.0	100		Viton Stinger
HSVE-086	01/26/16	Zone 5	N. Olive	ND	10.78	13.30	8.47	12.95	2.31													100		Viton Stinger
HSVE-086	02/08/16	Zone 5	N. Olive	ND	Dry	12.75	8.47	12.95	4.48													100		Viton Stinger
HSVE-086	02/25/16	Zone 5	N. Olive	ND	10.62	12.66	8.47	12.95	2.15	9.40	194	167	20.7	0.20	26.8	0.00	37.0	23.3	1.11	134	41.0	100		Viton Stinger
HSVE-086	03/08/16	Zone 5	N. Olive	ND	10.48	12.90	8.47	12.95	2.01													100		Viton Stinger
HSVE-086	03/22/16	Zone 5	N. Olive	ND	10.60	13.20	8.47	12.95	2.13	9.40	293	252	20.8	0.20	41.2	0.00	54.0	29.3	1.76	130	51.0	100		Viton Stinger
HSVE-087	10/06/15	Zone 4	Rand	ND	19.78	23.09	18.72	23.21	1.06													100		Viton Stinger
HSVE-087	10/14/15	Zone 4	Rand	ND	20.00	23.00	18.72	23.21	1.28	18.90	4,100	3,486	19.8	0.80	614	3.00	415	16.5	0.58	132	65.0	50		Viton Stinger
HSVE-087	10/27/15	Zone 4	Rand	ND	20.09	23.08	18.72	23.21	1.37													50		Viton Stinger
HSVE-087	11/10/15	Zone 4	Rand	ND	19.25	23.05	18.72	23.21	0.53													50		Viton Stinger
HSVE-087	11/18/15	Zone 4	Rand	ND	19.95	23.50	18.72	23.21	1.23	18.90	6,290	5,382	19.4	1.10	908	4.00	537	7.53	0.12	133	61.0	50		Viton Stinger
HSVE-087	11/23/15	Zone 4	Rand	ND	20.07	23.04	18.72	23.21	1.35													50		Viton Stinger
HSVE-087	12/01/15	Zone 4	Rand	ND	19.84	23.06	18.72	23.21	1.12													50		Viton Stinger
HSVE-087	12/09/15	Zone 4	Rand	ND	19.84	22.85	18.72	23.21	1.12	18.90	4,400	4,008	19.8	0.90	392	4.00	410	7.79	0.12	116	56.0	50		Viton Stinger
HSVE-087	12/14/15	Zone 4	Rand	NA	NA	22.85	18.72	23.21		18.90												100		Viton Stinger
HSVE-087	12/22/15	Zone 4	Rand	ND	19.85	23.06	18.72	23.21	1.13													100		Viton Stinger
HSVE-087	12/29/15	Zone 4	Rand	NA	20.00	22.96	18.72	23.21	1.28	18.90												100		Viton Stinger
HSVE-087	01/05/16	Zone 4	Rand	ND	19.38	23.00	18.72	23.21	0.66													100		Viton Stinger

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-087	01/13/16	Zone 4	Rand	ND	19.70	22.96	18.72	23.21	0.98	18.90	40.0	37.2	20.8	0.00	2.82	0.00	11.0	10.2	0.20	122	34.0	100		Viton Stinger
HSVE-087	01/26/16	Zone 4	Rand	ND	19.82	22.94	18.72	23.21	1.10													100		Viton Stinger
HSVE-087	02/08/16	Zone 4	Rand	ND	19.85	23.00	18.72	23.21	1.13													100		Viton Stinger
HSVE-087	02/25/16	Zone 4	Rand	ND	19.90	22.45	18.72	23.21	1.18	18.90	1,720	1,050	20.1	0.70	670	1.00	143	10.8	0.24	131	47.0	100		Viton Stinger
HSVE-087	03/08/16	Zone 4	Rand	ND	19.90	22.45	18.72	23.21	1.18													100		Viton Stinger
HSVE-087	03/22/16	Zone 4	Rand	ND	19.95	22.30	18.72	23.21	1.23	18.90	2,787	2,088	20.1	0.80	699	0.00	220	7.58	0.12	132	56.0	100		Viton Stinger
HSVE-087	03/28/16	Zone 4	Rand							20.00												100		Viton Stinger
HSVE-088	10/01/15	Zone 4	Rand	NA	NA	23.25	20.25	22.74		21.00												0		Viton Stinger
HSVE-088	10/06/15	Zone 4	Rand	ND	23.90	23.28	20.25	22.74	2.49													0		Viton Stinger
HSVE-088	10/14/15	Zone 4	Rand	ND	23.05	23.30	20.25	22.74	2.49	21.00	50.0	40.0	20.7	0.00	10.0	0.00	12.0					0		Viton Stinger
HSVE-088	10/27/15	Zone 4	Rand	ND	22.90	23.28	20.25	22.74	2.49													0		Viton Stinger
HSVE-088	11/10/15	Zone 4	Rand	ND	22.78	23.27	20.25	22.74	2.49													0		Viton Stinger
HSVE-088	11/18/15	Zone 4	Rand	ND	22.75	23.28	20.25	22.74	2.49	21.00	55.0	55.0	20.8	0.00	0.00	0.00	18.0					0		Viton Stinger
HSVE-088	11/30/15	Zone 4	Rand	NA	NA	23.28	20.25	22.74		21.00												16.7		Viton Stinger
HSVE-088	12/02/15	Zone 4	Rand	ND	15.40	23.30	20.25	22.74	-4.85													16.7		Viton Stinger
HSVE-088	12/03/15	Zone 4	Rand	NA	NA	23.30	20.25	22.74		21.00												0		Viton Stinger
HSVE-088	12/09/15	Zone 4	Rand	ND	22.75	23.25	20.25	22.74	2.49	21.00	40.0	40.0	20.8	0.00	0.00	0.00	11.0					0		Viton Stinger
HSVE-088	01/05/16	Zone 4	Rand	ND	16.15	23.27	20.25	22.74	-4.10													0		Viton Stinger
HSVE-088	01/13/16	Zone 4	Rand	ND	17.80	23.32	20.25	22.74	-2.45	21.00												0		Viton Stinger
HSVE-088	01/26/16	Zone 4	Rand	ND	20.07	23.40	20.25	22.74	-0.18													0		Viton Stinger
HSVE-088	02/09/16	Zone 4	Rand	ND	Dry	21.50	20.25	22.74	2.49													0		Viton Stinger
HSVE-088	02/12/16	Zone 4	Rand	NA	NA	21.50	20.25	22.74		21.00												16.7		Viton Stinger
HSVE-088	02/25/16	Zone 4	Rand	ND	20.75	23.28	20.25	22.74	0.50	21.00	1,943	291	20.6	0.20	1,652	1.00	33.0	0.00	0.00	17.0	43.0	16.7		Viton Stinger
HSVE-088	03/08/16	Zone 4	Rand	ND	21.12	23.28	20.25	22.74	0.87													16.7		Viton Stinger
HSVE-088	03/23/16	Zone 4	Rand	ND	Dry	23.20	20.25	22.74	2.49	21.00	1,966	363	20.6	0.40	1,603	0.00	52.0	5.78	0.05	20.0	59.0	16.7		Viton Stinger
HSVE-088	03/28/16	Zone 4	Rand	NA	NA	23.20	20.25	22.74		21.00												33.3		Viton Stinger
HSVE-089	10/06/15	Zone 4	N. Olive	ND	14.62	15.00	8.36	14.91	6.26													100		Viton Stinger
HSVE-089	10/14/15	Zone 4	N. Olive	ND	14.65	15.00	8.36	14.91	6.29	13.00	20.0	14.3	20.8	0.10	5.71	0.00	5.00	40.0	3.41	131	69.0	100		Viton Stinger
HSVE-089	10/19/15	Zone 4	N. Olive	NA	NA	15.00	8.36	14.91		13.00												0		Viton Stinger
HSVE-089	10/27/15	Zone 4	N. Olive	ND	Dry	15.00	8.36	14.91	6.55													0		Viton Stinger
HSVE-089	11/10/15	Zone 4	N. Olive	ND	Dry	14.71	8.36	14.91	6.55													0		Viton Stinger
HSVE-089	11/18/15	Zone 4	N. Olive	ND	Dry	14.70	8.36	14.91	6.55	13.00	45.0	45.0	17.2	0.80	0.00	0.00	17.0					0		Viton Stinger
HSVE-089	11/30/15	Zone 4	N. Olive	NA	NA	14.70	8.36	14.91		13.00												50		Viton Stinger
HSVE-089	12/02/15	Zone 4	N. Olive	ND	Dry	15.10	8.36	14.91	6.55													50		Viton Stinger
HSVE-089	12/03/15	Zone 4	N. Olive	NA	NA	15.10	8.36	14.91		13.00												100		Viton Stinger
HSVE-089	12/09/15	Zone 4	N. Olive	ND	10.62	15.22	8.36	14.91	2.26	13.00	201	119	20.7	0.40	81.7	0.00	18.0	26.5	1.44	129	53.0	100		Viton Stinger
HSVE-089	12/28/15	Zone 4	N. Olive	NA	NA	15.22	8.36	14.91		13.00												0		Viton Stinger
HSVE-089	01/05/16	Zone 4	N. Olive	ND	14.42	15.33	8.36	14.91	6.06													0		Viton Stinger
HSVE-089	01/13/16	Zone 4	N. Olive	ND	14.85	15.42	8.36	14.91	6.49	13.00	25.0	22.2	19.3	0.80	2.82	0.00	8.00					0		Viton Stinger
HSVE-089	01/26/16	Zone 4	N. Olive	ND	14.98	15.38	8.36	14.91	6.55													0		Viton Stinger
HSVE-089	02/09/16	Zone 4	N. Olive	ND	15.00	15.38	8.36	14.91	6.55													0		Viton Stinger
HSVE-089	02/12/16	Zone 4	N. Olive	NA	NA	15.38	8.36	14.91		13.00												16.7		Viton Stinger
HSVE-089	02/25/16	Zone 4	N. Olive	ND	13.10	15.40	8.36	14.91	4.74	13.00	2,442	921	19.7	0.80	1,521	1.00	57.0	11.0	0.18	32.0	43.0	16.7		Viton Stinger
HSVE-089	03/01/16	Zone 4	N. Olive	NA	NA	15.40	8.36	14.91		13.00												50		Viton Stinger
HSVE-089	03/08/16	Zone 4	N. Olive	ND	10.53	15.37	8.36	14.91	2.17													50		Viton Stinger
HSVE-089	03/23/16	Zone 4	N. Olive	ND	9.90	15.35	8.36	14.91	1.54	13.00	1,156	472	20.0	0.80	684	0.00	40.0	9.31	0.18	129	58.0	50		Viton Stinger
HSVE-090	10/01/15	Zone 4	Main Silt	NA	NA	24.50	21.36	24.88		21.90												16.7		Viton Stinger
HSVE-090	10/06/15	Zone 4	Main Silt	ND	15.52	24.58	21.36	24.88	-5.84													16.7		Viton Stinger
HSVE-090	10/14/15	Zone 4	Main Silt	ND	16.80	24.50	21.36	24.88	-4.56	21.90								15.5	0.51	131	66.0	33.3		Viton Stinger
HSVE-090	10/19/15	Zone 4	Main Silt	NA	NA	24.50	21.36	24.88		21.90												0		Viton Stinger
HSVE-090	10/27/15	Zone 4	Main Silt	ND	24.10	24.60	21.36	24.88	2.74													0		Viton Stinger
HSVE-090	11/10/15	Zone 4	Main Silt	ND	24.37	24.48	21.36	24.88	3.01													0		Viton Stinger
HSVE-090	11/19/15	Zone 4	Main Silt	ND	Dry	24.46	21.36	24.88	3.52	21.90	39,600	14,600	6.70	8.10	25,000	58.0	164					0		Viton Stinger
HSVE-090	11/20/15	Zone 4	Main Silt	NA	NA	24.46	21.36	24.88		21.90												16.7		Viton Stinger
HSVE-090	11/30/15	Zone 4	Main Silt	NA	NA	24.46	21.36	24.88		21.90												33.3		Viton Stinger
HSVE-090	12/02/15	Zone 4	Main Silt	ND	15.80	24.50	21.36	24.88	-5.56													33.3		Viton Stinger
HSVE-090	12/03/15	Zone 4	Main Silt	NA	NA	24.50	21.36	24.88		21.90												0		Viton Stinger
HSVE-090	12/09/15	Zone 4	Main Silt	ND	23.90	24.50	21.36	24.88	2.54	21.90	14,400	0.00	16.2	3.50	14,400	45.0	622					0		Viton Stinger

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-090	12/22/15	Zone 4	Main Silt	ND	17.00	24.48	21.36	24.88	-4.36													0		Viton Stinger
HSVE-090	12/24/15	Zone 4	Main Silt	NA	NA	24.48	21.36	24.88		21.90												0		Viton Stinger
HSVE-090	01/05/16	Zone 4	Main Silt	ND	16.42	24.39	21.36	24.88	-4.94													0		Viton Stinger
HSVE-090	01/13/16	Zone 4	Main Silt	ND	18.02	24.48	21.36	24.88	-3.34	21.90												0		Viton Stinger
HSVE-090	01/26/16	Zone 4	Main Silt	ND	20.45	24.60	21.36	24.88	-0.91													0		Viton Stinger
HSVE-090	02/09/16	Zone 4	Main Silt	ND	21.65	24.60	21.36	24.88	0.29													0		Viton Stinger
HSVE-090	02/25/16	Zone 4	Main Silt	ND	21.00	24.44	21.36	24.88	-0.36	21.90												0		Viton Stinger
HSVE-090	03/08/16	Zone 4	Main Silt	ND	22.98	24.46	21.36	24.88	1.62													0		Viton Stinger
HSVE-090	03/23/16	Zone 4	Main Silt	ND	23.15	24.40	21.36	24.88	1.79	21.90	75,450	9,650	13.4	6.70	65,800	85.0	65.0					0		Viton Stinger
HSVE-090	03/28/16	Zone 4	Main Silt	NA	NA	24.40	21.36	24.88		21.90												16.7		Viton Stinger
HSVE-091	10/01/15	Zone 4	Main Silt	NA	NA	25.18	21.54	25.05		22.50												16.7		Viton Stinger
HSVE-091	10/06/15	Zone 4	Main Silt	ND	21.40	25.15	21.54	25.05	-0.14													16.7		Viton Stinger
HSVE-091	10/14/15	Zone 4	Main Silt	ND	20.16	25.14	21.54	25.05	-1.38	22.50								0.00	0.00	107	67	16.7		Viton Stinger
HSVE-091	10/19/15	Zone 4	Main Silt	NA	NA	25.14	21.54	25.05		22.50												0		Viton Stinger
HSVE-091	10/27/15	Zone 4	Main Silt	ND	24.45	25.09	21.54	25.05	2.91													0		Viton Stinger
HSVE-091	11/10/15	Zone 4	Main Silt	ND	24.52	25.15	21.54	25.05	2.98													0		Viton Stinger
HSVE-091	11/19/15	Zone 4	Main Silt	ND	24.55	25.15	21.54	25.05	3.01	22.50	275,000	193,000	3.50	13.6	82,000	OVR	400					0		Viton Stinger
HSVE-091	11/20/15	Zone 4	Main Silt	NA	NA	25.15	21.54	25.05		22.50												16.7		Viton Stinger
HSVE-091	11/30/15	Zone 4	Main Silt	NA	NA	25.15	21.54	25.05		22.50												33.3		Viton Stinger
HSVE-091	12/02/15	Zone 4	Main Silt	ND	22.10	25.10	21.54	25.05	0.56													33.3		Viton Stinger
HSVE-091	12/09/15	Zone 4	Main Silt	ND	22.45	25.10	21.54	25.05	0.91	22.50	72,200	63,700	9.40	9.50	8,500	74.0	424	4.92	0.05	130	54.0	50		Viton Stinger
HSVE-091	12/14/15	Zone 4	Main Silt	NA	NA	25.10	21.54	25.05		22.50												100		Viton Stinger
HSVE-091	12/22/15	Zone 4	Main Silt	ND	22.13	25.17	21.54	25.05	0.59													100		Viton Stinger
HSVE-091	12/28/15	Zone 4	Main Silt	NA	NA	25.17	21.54	25.05		22.50												0		Viton Stinger
HSVE-091	01/05/16	Zone 4	Main Silt	ND	16.21	25.10	21.54	25.05	-5.33													0		Viton Stinger
HSVE-091	01/13/16	Zone 4	Main Silt	ND	17.29	25.21	21.54	25.05	-4.25	22.50												0		Viton Stinger
HSVE-091	01/26/16	Zone 4	Main Silt	ND	19.06	25.12	21.54	25.05	-2.48													0		Viton Stinger
HSVE-091	02/09/16	Zone 4	Main Silt	ND	19.62	25.35	21.54	25.05	-1.92													0		Viton Stinger
HSVE-091	02/25/16	Zone 4	Main Silt	ND	21.20	25.15	21.54	25.05	-0.34	22.50												0		Viton Stinger
HSVE-091	03/08/16	Zone 4	Main Silt	ND	21.56	25.14	21.54	25.05	0.02													0		Viton Stinger
HSVE-091	03/23/16	Zone 4	Main Silt	ND	21.31	25.08	21.54	25.05	-0.23	22.50												0		Viton Stinger
HSVE-092	10/06/15	Zone 4	N. Olive	ND	12.70	13.70	9.28	13.77	3.42													100		Viton Stinger
HSVE-092	10/14/15	Zone 4	N. Olive	ND	12.90	13.60	9.28	13.77	3.62	11.00	275	50.7	20.7	0.30	224	0.00	8.00	43.3	4.00	134	63.0	100		Viton Stinger
HSVE-092	10/27/15	Zone 4	N. Olive	ND	13.30	13.58	9.28	13.77	4.02													100		Viton Stinger
HSVE-092	11/10/15	Zone 4	N. Olive	ND	11.65	13.63	9.28	13.77	2.37													100		Viton Stinger
HSVE-092	11/19/15	Zone 4	N. Olive	ND	11.14	13.40	9.28	13.77	1.86	11.00	1,760	538	20.1	0.40	1,222	0.00	57.0	22.8	1.12	140	55.0	100		Viton Stinger
HSVE-092	11/23/15	Zone 4	N. Olive	ND	11.10	13.72	9.28	13.77	1.82													100		Viton Stinger
HSVE-092	11/24/15	Zone 4	N. Olive							11.50												100		Viton Stinger
HSVE-092	12/02/15	Zone 4	N. Olive	ND	9.80	13.32	9.28	13.77	0.52													100		Viton Stinger
HSVE-092	12/09/15	Zone 4	N. Olive	ND	Dry	13.32	9.28	13.77	4.49	11.50	377	370	19.8	0.60	7.04	0.00	77.0					0		Viton Stinger
HSVE-092	12/14/15	Zone 4	N. Olive	NA	NA	13.32	9.28	13.77		11.50												16.7		Viton Stinger
HSVE-092	12/22/15	Zone 4	N. Olive	ND	Dry	13.37	9.28	13.77	4.49													16.7		Viton Stinger
HSVE-092	12/30/15	Zone 4	N. Olive	NA	12.75	13.40	9.28	13.77	3.47	11.50												50		Viton Stinger
HSVE-092	01/05/16	Zone 4	N. Olive	ND	Dry	13.57	9.28	13.77	4.49													50		Viton Stinger
HSVE-092	01/13/16	Zone 4	N. Olive	ND	12.26	13.44	9.28	13.77	2.98	11.50	70.0	41.8	20.7	0.10	28.2	0.00	11.0	9.95	0.15	41.0	37.0	50		Viton Stinger
HSVE-092	01/26/16	Zone 4	N. Olive	ND	Dry	13.55	9.28	13.77	4.49													50		Viton Stinger
HSVE-092	02/09/16	Zone 4	N. Olive	ND	Dry	13.65	9.28	13.77	4.49													50		Viton Stinger
HSVE-092	02/12/16	Zone 4	N. Olive	NA	NA	13.65	9.28	13.77		11.50												66.7		Viton Stinger
HSVE-092	02/25/16	Zone 4	N. Olive	ND	11.35	13.60	9.28	13.77	2.07	11.50	1,512	158	20.4	0.30	1,354	1.00	21.0	60.9	7.65	135	43.0	66.7		Viton Stinger
HSVE-092	03/08/16	Zone 4	N. Olive	ND	9.90	13.40	9.28	13.77	0.62													66.7		Viton Stinger
HSVE-092	03/23/16	Zone 4	N. Olive	ND	11.00	13.55	9.28	13.77	1.72	11.50	158	58.0	20.8	0.00	100	0.00	13.0					0		Viton Stinger
HSVE-093	10/06/15	Zone 4	Main Silt	ND	23.45	26.38	22.54	26.05	0.91													0		Viton Stinger
HSVE-093	10/14/15	Zone 4	Main Silt	ND	23.75	26.43	22.54	26.05	1.21	23.10	14,300	0.00	19.9	0.60	14,300	10.0	113					0		Viton Stinger
HSVE-093	10/27/15	Zone 4	Main Silt	ND	24.30	26.48	22.54	26.05	1.76													0		Viton Stinger
HSVE-093	11/03/15	Zone 4	Main Silt	NA	NA	26.48	22.54	26.05		23.10												16.7		Viton Stinger
HSVE-093	11/10/15	Zone 4	Main Silt	ND	23.16	26.35	22.54	26.05	0.62													16.7		Viton Stinger
HSVE-093	11/19/15	Zone 4	Main Silt	ND	24.00	26.34	22.54	26.05	1.46	23.10	64,600	6,544	17.1	2.40	58,056	69.0	164	6.82	0.08	75.0	52.0	16.7		Viton Stinger
HSVE-093	11/23/15	Zone 4	Main Silt	ND	23.00	26.44	22.54	26.05	0.46													16.7		Viton Stinger

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-093	11/24/15	Zone 4	Main Silt	NA	NA	26.44	22.54	26.05		23.10												0		Viton Stinger
HSVE-093	12/02/15	Zone 4	Main Silt	ND	24.70	26.45	22.54	26.05	2.16													0		Viton Stinger
HSVE-093	12/03/15	Zone 4	Main Silt	NA	NA	26.45	22.54	26.05		23.10												16.7		Viton Stinger
HSVE-093	12/09/15	Zone 4	Main Silt	ND	22.88	26.33	22.54	26.05	0.34	23.10	790	310	20.8	0.30	480	0.00	57.0	7.86	0.10	55.0	51.0	50		Viton Stinger
HSVE-093	12/14/15	Zone 4	Main Silt	NA	NA	26.33	22.54	26.05		23.10												16.7		Viton Stinger
HSVE-093	12/22/15	Zone 4	Main Silt	ND	22.84	26.18	22.54	26.05	0.30													16.7		Viton Stinger
HSVE-093	12/28/15	Zone 4	Main Silt	NA	NA	26.18	22.54	26.05		23.10												0		Viton Stinger
HSVE-093	01/05/16	Zone 4	Main Silt	ND	16.62	26.12	22.54	26.05	-5.92													0		Viton Stinger
HSVE-093	01/13/16	Zone 4	Main Silt	ND	17.70	26.15	22.54	26.05	-4.84	23.10												0		Viton Stinger
HSVE-093	01/26/16	Zone 4	Main Silt	ND	19.10	26.10	22.54	26.05	-3.44													0		Viton Stinger
HSVE-093	02/09/16	Zone 4	Main Silt	ND	20.45	26.35	22.54	26.05	-2.09													0		Viton Stinger
HSVE-093	02/25/16	Zone 4	Main Silt	ND	21.65	26.10	22.54	26.05	-0.89	23.10												0		Viton Stinger
HSVE-093	03/08/16	Zone 4	Main Silt	ND	22.08	26.17	22.54	26.05	-0.46													0		Viton Stinger
HSVE-093	03/23/16	Zone 4	Main Silt	ND	22.50	26.10	22.54	26.05	-0.04	23.10												0		Viton Stinger
HSVE-094	10/06/15	Zone 4	Main Silt	ND	Dry	26.22	22.23	26.22	3.99													0		Viton Stinger
HSVE-094	10/14/15	Zone 4	Main Silt	ND	Dry	26.20	22.23	26.22	3.99	22.90	14,100	814	19.0	1.80	13,286	9.00	42.0					0		Viton Stinger
HSVE-094	10/15/15	Zone 4	Main Silt	NA	NA	26.20	22.23	26.22		22.90												16.7		Viton Stinger
HSVE-094	10/19/15	Zone 4	Main Silt	NA	NA	26.20	22.23	26.22		22.90												50		Viton Stinger
HSVE-094	10/27/15	Zone 4	Main Silt	ND	16.60	26.23	22.23	26.22	-5.63													50		Viton Stinger
HSVE-094	11/03/15	Zone 4	Main Silt	NA	NA	26.23	22.23	26.22		22.90												0		Viton Stinger
HSVE-094	11/10/15	Zone 4	Main Silt	ND	24.84	26.18	22.23	26.22	2.61													0		Viton Stinger
HSVE-094	11/19/15	Zone 4	Main Silt	ND	25.04	26.25	22.23	26.22	2.81	22.90	16,500	1,639	18.8	1.40	14,861	19.0	128					0		Viton Stinger
HSVE-094	11/20/15	Zone 4	Main Silt	NA	NA	26.25	22.23	26.22		22.90												16.7		Viton Stinger
HSVE-094	12/02/15	Zone 4	Main Silt	ND	18.72	26.14	22.23	26.22	-3.51													16.7		Viton Stinger
HSVE-094	12/03/15	Zone 4	Main Silt	NA	NA	26.14	22.23	26.22		22.90												0		Viton Stinger
HSVE-094	12/09/15	Zone 4	Main Silt	ND	24.70	26.15	22.23	26.22	2.47	22.90	147	126	20.5	0.00	21.1	0.00	32					0		Viton Stinger
HSVE-094	12/30/15	Zone 4	Main Silt	NA	24.70	26.20	22.23	26.22	2.47	22.90												0		Viton Stinger
HSVE-094	01/05/16	Zone 4	Main Silt	ND	16.95	26.15	22.23	26.22	-5.28													0		Viton Stinger
HSVE-094	01/13/16	Zone 4	Main Silt	ND	18.20	26.15	22.23	26.22	-4.03	22.90												0		Viton Stinger
HSVE-094	01/26/16	Zone 4	Main Silt	ND	20.00	26.10	22.23	26.22	-2.23													0		Viton Stinger
HSVE-094	02/09/16	Zone 4	Main Silt	ND	21.70	26.10	22.23	26.22	-0.53													0		Viton Stinger
HSVE-094	02/25/16	Zone 4	Main Silt	ND	21.90	26.12	22.23	26.22	-0.33	22.90												0		Viton Stinger
HSVE-094	03/08/16	Zone 4	Main Silt	ND	23.45	26.10	22.23	26.22	1.22													0		Viton Stinger
HSVE-094	03/23/16	Zone 4	Main Silt	ND	23.95	26.05	22.23	26.22	1.72	22.90	5,368	452	20.5	0.60	4,916	5.00	50.0					0		Viton Stinger
HSVE-094	03/28/16	Zone 4	Main Silt	NA	NA	26.05	22.23	26.22		22.90												16.7		Viton Stinger
HSVE-095	10/06/15	Zone 4	Main Silt	ND	21.70	25.95	17.73	25.82	3.97													100		Viton Stinger
HSVE-095	10/14/15	Zone 4	Main Silt	ND	21.70	25.94	17.73	25.82	3.97	18.50	715	565	17.2	2.90	150	0.00	120	16.4	0.55	121	64.0	100		Viton Stinger
HSVE-095	10/27/15	Zone 4	Main Silt	ND	21.69	25.95	17.73	25.82	3.96													100		Viton Stinger
HSVE-095	11/10/15	Zone 4	Main Silt	ND	23.93	26.02	17.73	25.82	6.20													100		Viton Stinger
HSVE-095	11/19/15	Zone 4	Main Silt	ND	24.02	25.95	17.73	25.82	6.29	18.50	1,400	1,336	15.0	4.30	64.0	0.00	32.0	19.1	0.76	133	55.0	100		Viton Stinger
HSVE-095	12/02/15	Zone 4	Main Silt	ND	23.95	25.85	17.73	25.82	6.22													100		Viton Stinger
HSVE-095	12/09/15	Zone 4	Main Silt	ND	21.66	25.90	17.73	25.82	3.93	18.50	60.0	60.0	17.4	1.90	0.00	0.00	17.0	22.6	0.99	115	50.0	100		Viton Stinger
HSVE-095	12/29/15	Zone 4	Main Silt	NA	NA	25.90	17.73	25.82		18.50												0		Viton Stinger
HSVE-095	01/05/16	Zone 4	Main Silt	ND	19.15	25.82	17.73	25.82	1.42													0		Viton Stinger
HSVE-095	01/05/16	Zone 4	Main Silt	ND	19.15	25.82	17.73	25.82	1.42													0		Viton Stinger
HSVE-095	01/13/16	Zone 4	Main Silt	ND	19.98	25.58	17.73	25.82	2.25	18.50	18.0	11.0	20.6	0.20	7.04	0.00	5.00					0		Viton Stinger
HSVE-095	01/26/16	Zone 4	Main Silt	ND	22.48	25.90	17.73	25.82	4.75													0		Viton Stinger
HSVE-095	02/10/16	Zone 4	Main Silt	ND	23.94	25.94	17.73	25.82	6.21													0		Viton Stinger
HSVE-095	02/12/16	Zone 4	Main Silt	NA	NA	25.94	17.73	25.82		18.50												16.7		Viton Stinger
HSVE-095	02/25/16	Zone 4	Main Silt	ND	21.72	25.80	17.73	25.82	3.99	18.50	25.0	12.3	20.6	0.30	12.7	0.00	3.00	10.3	0.19	92.0	46.0	16.7		Viton Stinger
HSVE-095	03/01/16	Zone 4	Main Silt	NA	NA	25.80	17.73	25.82		18.50												66.7		Viton Stinger
HSVE-095	03/08/16	Zone 4	Main Silt	ND	21.95	26.00	17.73	25.82	4.22													66.7		Viton Stinger
HSVE-095	03/14/16	Zone 4	Main Silt	NA	NA	26.00	17.73	25.82		18.50												83.3		Viton Stinger
HSVE-095	03/24/16	Zone 4	Main Silt	ND	22.60	25.85	17.73	25.82	4.87	18.50	320	232	19.7	1.00	88.2	0.00	554	17.0	0.58	123	51.0	100		Viton Stinger
HSVE-096	10/01/15	Zone 4	Rand	NA	NA	25.48	17.83	24.83		19.90												50		Viton Stinger
HSVE-096	10/06/15	Zone 4	Rand	ND	20.45	25.54	17.83	24.83	2.62													50		Viton Stinger
HSVE-096	10/14/15	Zone 4	Rand	ND	20.55	25.41	17.83	24.83	2.72	19.90	325	302	20.2	0.80	22.9	0.00	47.0	21.0	0.89	119	64.0	50		Viton Stinger
HSVE-096	10/15/15	Zone 4	Rand	NA	NA	25.41	17.83	24.83		19.90												66.7		Viton Stinger

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-096	10/27/15	Zone 4	Rand	ND	21.56	25.55	17.83	24.83	3.73													66.7		Viton Stinger
HSVE-096	11/10/15	Zone 4	Rand	ND	21.40	25.30	17.83	24.83	3.57													66.7		Viton Stinger
HSVE-096	11/11/15	Zone 4	Rand	NA	NA	25.30	17.83	24.83		19.90												83.3		Viton Stinger
HSVE-096	11/19/15	Zone 4	Rand	ND	23.65	25.36	17.83	24.83	5.82	19.90	70.0	70.0	20.8	0.00	0.00	0.00	21.0	37.6	2.87	124	56.0	83.3		Viton Stinger
HSVE-096	11/30/15	Zone 4	Rand	NA	NA	25.36	17.83	24.83		19.90												100		Viton Stinger
HSVE-096	12/02/15	Zone 4	Rand	ND	23.18	25.30	17.83	24.83	5.35													100		Viton Stinger
HSVE-096	12/09/15	Zone 4	Rand	ND	23.26	25.30	17.83	24.83	5.43	19.90	1,238	1,217	19.6	0.90	21.1	0.00	165	35.2	2.52	124	57.0	100		Viton Stinger
HSVE-096	12/29/15	Zone 4	Rand	NA	NA	25.30	17.83	24.83		19.90												0		Viton Stinger
HSVE-096	01/05/16	Zone 4	Rand	ND	20.47	25.20	17.83	24.83	2.64													0		Viton Stinger
HSVE-096	01/13/16	Zone 4	Rand	ND	20.22	25.22	17.83	24.83	2.39	19.90	2,600	2,080	11.5	3.30	520	4.00	19.4					0		Viton Stinger
HSVE-096	01/15/16	Zone 4	Rand	NA	NA	25.22	17.83	24.83		19.90												16.7		Viton Stinger
HSVE-096	01/19/16	Zone 4	Rand	ND	17.24	25.25	17.83	24.83	-0.59													16.7		Viton Stinger
HSVE-096	01/21/16	Zone 4	Rand	NA	NA	25.25	17.83	24.83		19.90												0		Viton Stinger
HSVE-096	01/26/16	Zone 4	Rand	ND	21.43	25.20	17.83	24.83	3.60													0		Viton Stinger
HSVE-096	02/10/16	Zone 4	Rand	ND	23.52	25.18	17.83	24.83	5.69													0		Viton Stinger
HSVE-096	02/12/16	Zone 4	Rand	NA	NA	25.18	17.83	24.83		19.90												16.7		Viton Stinger
HSVE-096	02/25/16	Zone 4	Rand	ND	24.45	25.72	17.83	24.83	6.62	19.90	342	286	18.2	1.80	56.3	0.00	48.0	28.3	1.15	20.0	40.0	16.7		Viton Stinger
HSVE-096	03/01/16	Zone 4	Rand	NA	NA	25.72	17.83	24.83		19.90												50		Viton Stinger
HSVE-096	03/08/16	Zone 4	Rand	ND	19.86	25.16	17.83	24.83	2.03													50		Viton Stinger
HSVE-096	03/23/16	Zone 4	Rand	ND	23.85	25.17	17.83	24.83	6.02	19.90	1,172	1,123	17.2	2.70	48.5	0.00	165	8.88	0.14	81.0	59.0	16.7		Viton Stinger
HSVE-096	03/28/16	Zone 4	Rand	NA	NA	25.17	17.83	24.83		19.90												50		Viton Stinger
HSVE-097	10/01/15	Zone 4	Rand	NA	NA	23.05	13.32	22.85														100		None
HSVE-097	10/06/15	Zone 4	Rand	ND	17.70	23.12	13.32	22.85	4.38													100		None
HSVE-097	10/14/15	Zone 4	Rand	ND	16.97	23.10	13.32	22.85	3.65		1,170	970	16.5	4.20	200	0.00	193	24.8	1.30	131	65.0	100		None
HSVE-097	10/27/15	Zone 4	Rand	ND	22.35	23.10	13.32	22.85	9.03													100		None
HSVE-097	11/10/15	Zone 4	Rand	ND	Dry	23.03	13.32	22.85	9.53													100		None
HSVE-097	11/19/15	Zone 4	Rand	ND	Dry	23.00	13.32	22.85	9.53		290	280	20.6	0.40	9.72	0.00	71.0	40.5	3.35	126	56.0	100		None
HSVE-097	12/02/15	Zone 4	Rand	ND	Dry	23.10	13.32	22.85	9.53													100		None
HSVE-097	12/09/15	Zone 4	Rand	ND	20.20	23.00	13.32	22.85	6.88		1,469	1,455	16.7	3.30	14.1	0.00	235	26.7	1.45	124	58.0	100		None
HSVE-097	01/05/16	Zone 4	Rand	ND	20.85	23.00	13.32	22.85	7.53													100		None
HSVE-097	01/13/16	Zone 4	Rand	ND	12.80	25.80	13.32	22.85	-0.52									0.00	0.00	128	40.0	100		None
HSVE-097	01/26/16	Zone 4	Rand	ND	10.94	23.05	13.32	22.85	-2.38													100		None
HSVE-097	02/10/16	Zone 4	Rand	ND	11.90	23.10	13.32	22.85	-1.42													100		None
HSVE-097	02/25/16	Zone 4	Rand	ND	22.00	23.07	13.32	22.85	8.68		69.0	56.3	19.1	1.60	12.7	0.00	15.0	22.6	1.04	128	50.0	100		None
HSVE-097	03/08/16	Zone 4	Rand	ND	13.20	23.10	13.32	22.85	-0.12													100		None
HSVE-097	03/23/16	Zone 4	Rand	ND	21.60	23.00	13.32	22.85	8.28		322	282	19.2	1.50	39.7	0.00	60.0	16.3	0.55	127	59.0	100		None
HSVE-098	10/06/15	Zone 2	A/B Clay	ND	10.25	11.35	6.60	10.98	3.65													100		Viton Stinger
HSVE-098	10/13/15	Zone 2	A/B Clay	ND	11.13	11.35	6.60	10.98	4.38	9.60	6,800	5,235	19.7	1.00	1,565	4.00	432	30.2	1.87	122	66.0	100		Viton Stinger
HSVE-098	10/28/15	Zone 2	A/B Clay	ND	10.35	11.36	6.60	10.98	3.75													100		Viton Stinger
HSVE-098	11/11/15	Zone 2	A/B Clay	ND	10.58	11.37	6.60	10.98	3.98													100		Viton Stinger
HSVE-098	11/19/15	Zone 2	A/B Clay	ND	10.65	11.35	6.60	10.98	4.05	9.60	6,480	4,845	19.7	0.90	1,635	5.00	390	20.9	0.89	125	57.0	100		Viton Stinger
HSVE-098	12/02/15	Zone 2	A/B Clay	ND	10.53	11.35	6.60	10.98	3.93													100		Viton Stinger
HSVE-098	12/08/15	Zone 2	A/B Clay	ND	10.63	11.37	6.60	10.98	4.03	9.60	7,043	5,116	19.9	0.90	1,927	7.00	343	11.5	0.26	118	53.0	100		Viton Stinger
HSVE-098	12/29/15	Zone 2	A/B Clay	NA	10.60	11.40	6.60	10.98	4.00	9.60												100		Viton Stinger
HSVE-098	01/05/16	Zone 2	A/B Clay	ND	10.64	11.38	6.60	10.98	4.04													100		Viton Stinger
HSVE-098	01/14/16	Zone 2	A/B Clay	ND	10.62	11.36	6.60	10.98	4.02	9.60	1,867	1,788	20.2	0.70	78.9	0.00	215	5.16	0.05	108	43.0	100		Viton Stinger
HSVE-098	01/26/16	Zone 2	A/B Clay	ND	10.58	11.37	6.60	10.98	3.98													100		Viton Stinger
HSVE-098	02/10/16	Zone 2	A/B Clay	ND	10.65	11.37	6.60	10.98	4.05													100		Viton Stinger
HSVE-098	02/25/16	Zone 2	A/B Clay	ND	10.65	11.37	6.60	10.98	4.05	9.60	3,920	2,962	20.1	0.70	958	2.00	297	21.2	0.88	120	44.0	100		Viton Stinger
HSVE-098	03/10/16	Zone 2	A/B Clay	ND	10.63	11.36	6.60	10.98	4.03													100		Viton Stinger
HSVE-098	03/24/16	Zone 2	A/B Clay	ND	10.67	11.35	6.60	10.98	4.07	9.60	3,580	2,506	20.2	0.60	1,074	4.00	260	20.7	0.87	124	57.0	100		Viton Stinger
HSVE-099	10/01/15	Zone 6	Multiple Strata	NA	NA	15.62	9.08	15.37		10.20												100		Viton Stinger
HSVE-099	10/05/15	Zone 6	Multiple Strata	ND	10.00	15.63	9.08	15.37	0.92													100		Viton Stinger
HSVE-099	10/13/15	Zone 6	Multiple Strata	ND	10.00	15.60	9.08	15.37	0.92	10.20	70,800	22,249	18.9	1.60	48,551	47.0	114	34.7	2.54	127	69.0	100		Viton Stinger
HSVE-099	10/16/15	Zone 6	Multiple Strata							10.10												100		Viton Stinger
HSVE-099	10/26/15	Zone 6	Multiple Strata	ND	9.95	15.60	9.08	15.37	0.87													100		Viton Stinger
HSVE-099	11/10/15	Zone 6	Multiple Strata	ND	9.95	15.58	9.08	15.37	0.87													100		Viton Stinger
HSVE-099	11/17/15	Zone 6	Multiple Strata	ND	9.95	15.60	9.08	15.37	0.87	10.10	57,400	17,686	19.5	1.10	39,714	38.0	94.0	45.8	4.09	113	54.0	100		Viton Stinger

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-099	11/23/15	Zone 6	Multiple Strata	ND	9.85	15.60	9.08	15.37	0.77													100		Viton Stinger
HSVE-099	11/24/15	Zone 6	Multiple Strata							10.10												100		Viton Stinger
HSVE-099	12/01/15	Zone 6	Multiple Strata	ND	9.78	15.55	9.08	15.37	0.70													100		Viton Stinger
HSVE-099	12/08/15	Zone 6	Multiple Strata	ND	9.80	15.52	9.08	15.37	0.72	10.10	29,000	7,451	19.9	0.80	21,549	32.0	96.0	32.3	2.02	114	48.0	100		Viton Stinger
HSVE-099	12/28/15	Zone 6	Multiple Strata	NA	NA	15.52	9.08	15.37		10.10												0		Viton Stinger
HSVE-099	12/30/15	Zone 6	Multiple Strata	NA	NA	15.52	9.08	15.37		10.10												100		Viton Stinger
HSVE-099	01/04/16	Zone 6	Multiple Strata	ND	11.16	15.52	9.08	15.37	2.08													100		Viton Stinger
HSVE-099	01/12/16	Zone 6	Multiple Strata	ND	9.77	15.47	9.08	15.37	0.69	10.10	95.0	21.1	20.8	0.00	73.9	0.00	2.00	46.7	4.40	131	40.0	50		Viton Stinger
HSVE-099	01/19/16	Zone 6	Multiple Strata	ND	9.80	14.33	9.08	15.37	0.72													50		Viton Stinger
HSVE-099	01/25/16	Zone 6	Multiple Strata	ND	9.66	15.50	9.08	15.37	0.58													50		Viton Stinger
HSVE-099	02/02/16	Zone 6	Multiple Strata							11.10												50		Viton Stinger
HSVE-099	02/08/16	Zone 6	Multiple Strata	ND	11.50	15.50	9.08	15.37	2.42													50		Viton Stinger
HSVE-099	02/09/16	Zone 6	Multiple Strata	ND	10.69	15.50	9.08	15.37	1.61													50		Viton Stinger
HSVE-099	02/23/16	Zone 6	Multiple Strata	ND	10.58	15.52	9.08	15.37	1.50	11.10	13,200	2,400	20.5	0.40	10,800	9.00	86.0	48.1	4.30	104	46.0	50		Viton Stinger
HSVE-099	03/07/16	Zone 6	Multiple Strata	ND	10.65	15.33	9.08	15.37	1.57													50		Viton Stinger
HSVE-099	03/22/16	Zone 6	Multiple Strata	ND	10.60	15.30	9.08	15.37	1.52	11.10	111,200	48,994	19.2	1.00	62,206	79.0	113	29.8	1.74	115	52.0	50		Viton Stinger
HSVE-099	03/28/16	Zone 6	Multiple Strata	NA	NA	15.30	9.08	15.37		11.10												66.7		Viton Stinger
HSVE-100	10/06/15	Zone 5	N. Olive	ND	10.87	15.60	8.77	15.08	2.10													100		Viton Stinger
HSVE-100	10/13/15	Zone 5	N. Olive	ND	11.15	15.71	8.77	15.08	2.38	9.60	7,530	3,472	20.4	0.40	4,058	5.00	224	13.7	0.39	123	70.0	100		Viton Stinger
HSVE-100	10/27/15	Zone 5	N. Olive	ND	10.90	15.65	8.77	15.08	2.13													100		Viton Stinger
HSVE-100	11/10/15	Zone 5	N. Olive	ND	9.73	15.65	8.77	15.08	0.96													100		Viton Stinger
HSVE-100	11/18/15	Zone 5	N. Olive	ND	7.40	10.60	8.77	15.08	-1.37	9.60								6.95	0.1	128	58	100		Viton Stinger
HSVE-100	11/20/15	Zone 5	N. Olive	NA	NA	10.60	8.77	15.08		9.60												0		Viton Stinger
HSVE-100	12/01/15	Zone 5	N. Olive	ND	10.60	15.63	8.77	15.08	1.83													0		Viton Stinger
HSVE-100	12/08/15	Zone 5	N. Olive	ND	10.78	15.55	8.77	15.08	2.01	9.60	11,800	4,532	20.3	0.50	7,268	14.0	221	10.5	0.22	121	52.0	100		Viton Stinger
HSVE-100	12/29/15	Zone 5	N. Olive	NA	NA	15.55	8.77	15.08		9.60												0		Viton Stinger
HSVE-100	01/05/16	Zone 5	N. Olive	ND	14.37	15.30	8.77	15.08	5.60													0		Viton Stinger
HSVE-100	01/12/16	Zone 5	N. Olive	ND	14.56	15.65	8.77	15.08	5.79	9.60	382	247	19.3	0.70	135	0.00	51.0					0		Viton Stinger
HSVE-100	01/15/16	Zone 5	N. Olive	NA	NA	15.65	8.77	15.08		9.60												16.7		Viton Stinger
HSVE-100	01/19/16	Zone 5	N. Olive	ND	11.20	15.30	8.77	15.08	2.43													16.7		Viton Stinger
HSVE-100	01/22/16	Zone 5	N. Olive	NA	NA	15.30	8.77	15.08		9.60												33.3		Viton Stinger
HSVE-100	01/25/16	Zone 5	N. Olive	ND	10.35	15.30	8.77	15.08	1.58													33.3		Viton Stinger
HSVE-100	02/09/16	Zone 5	N. Olive	ND	10.27	15.30	8.77	15.08	1.50													33.3		Viton Stinger
HSVE-100	02/23/16	Zone 5	N. Olive	ND	Dry	15.30	8.77	15.08	6.31	9.60	27,800	12,943	19.1	0.80	14,857	19.0	245	10.6	0.22	120	45.0	100		Viton Stinger
HSVE-100	03/07/16	Zone 5	N. Olive	ND	10.54	15.56	8.77	15.08	1.77													100		Viton Stinger
HSVE-100	03/22/16	Zone 5	N. Olive	ND	10.49	15.32	8.77	15.08	1.72	9.60	7,351	2,677	20.1	0.40	4,674	7.00	162	10.2	0.21	124	51.0	100		Viton Stinger
HSVE-101	10/02/15	Zone 5	N. Olive							10.30												100		Viton Stinger
HSVE-101	10/02/15	Zone 5	N. Olive							10.30												100		Viton Stinger
HSVE-101	10/06/15	Zone 5	N. Olive	ND	10.72	15.57	9.11	14.92	1.61													100		Viton Stinger
HSVE-101	10/14/15	Zone 5	N. Olive	ND	10.70	15.21	9.11	14.92	1.59	10.30	245	158	20.7	0.20	87.1	0.00	30.0	13.2	0.37	135	61.0	100		Viton Stinger
HSVE-101	10/27/15	Zone 5	N. Olive	ND	11.10	15.46	9.11	14.92	1.99													100		Viton Stinger
HSVE-101	11/10/15	Zone 5	N. Olive	ND	10.78	15.45	9.11	14.92	1.67													100		Viton Stinger
HSVE-101	11/18/15	Zone 5	N. Olive	ND	10.50	15.20	9.11	14.92	1.39	10.30	920	557	20.2	0.30	363	0.00	106	9.69	0.20	136	58.0	100		Viton Stinger
HSVE-101	11/20/15	Zone 5	N. Olive							19.80												100		Viton Stinger
HSVE-101	11/23/15	Zone 5	N. Olive	ND	10.22	15.34	9.11	14.92	1.11													100		Viton Stinger
HSVE-101	11/24/15	Zone 5	N. Olive							10.30												100		Viton Stinger
HSVE-101	12/01/15	Zone 5	N. Olive	ND	10.35	15.30	9.11	14.92	1.24													100		Viton Stinger
HSVE-101	12/09/15	Zone 5	N. Olive	ND	10.52	15.35	9.11	14.92	1.41	10.30	380	253	20.7	0.20	127	0.00	45.0	14.7	0.44	129	47.0	100		Viton Stinger
HSVE-101	12/29/15	Zone 5	N. Olive	NA	NA	15.35	9.11	14.92		10.30												0		Viton Stinger
HSVE-101	01/05/16	Zone 5	N. Olive	ND	Dry	15.40	9.11	14.92	5.81													0		Viton Stinger
HSVE-101	01/13/16	Zone 5	N. Olive	ND	14.47	15.68	9.11	14.92	5.36	10.30	290	98.5	19.5	0.40	191.6	0.00	22.0					0		Viton Stinger
HSVE-101	01/15/16	Zone 5	N. Olive	NA	NA	15.68	9.11	14.92		10.30												16.7		Viton Stinger
HSVE-101	01/19/16	Zone 5	N. Olive	ND	13.72	15.64	9.11	14.92	4.61													16.7		Viton Stinger
HSVE-101	01/22/16	Zone 5	N. Olive	NA	NA	15.64	9.11	14.92		10.30												33.3		Viton Stinger
HSVE-101	01/26/16	Zone 5	N. Olive	ND	10.45	15.42	9.11	14.92	1.34													33.3		Viton Stinger
HSVE-101	02/09/16	Zone 5	N. Olive	ND	10.55	15.40	9.11	14.92	1.44													33.3		Viton Stinger
HSVE-101	02/23/16	Zone 5	N. Olive	ND	10.60	15.40	9.11	14.92	1.49	10.30	851	440	20.6	0.20	411	0.00	65.0	12.8	0.33	127	49.0	50		Viton Stinger
HSVE-101	03/07/16	Zone 5	N. Olive	ND	11.35	15.47	9.11	14.92	2.24													50		Viton Stinger

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-101	03/22/16	Zone 5	N. Olive	ND	10.87	15.50	9.11	14.92	1.76	10.30	273	126	20.7	0.10	147	0.00	19.0	8.99	0.17	133	57.0	50		Viton Stinger
HSVE-102	10/05/15	Zone 1	N. Olive	ND	13.89	14.22	12.60	16.60	1.29													100		Viton Stinger
HSVE-102	10/12/15	Zone 1	N. Olive	ND	13.93	14.20	12.60	16.60	1.33	12.98	800	36.1	20.4	0.30	764	0.00	7.00	16.5	0.54	111	70.0	100		Viton Stinger
HSVE-102	10/26/15	Zone 1	N. Olive	ND	13.90	14.25	12.60	16.60	1.30													100		Viton Stinger
HSVE-102	11/09/15	Zone 1	N. Olive	ND	9.90	14.16	12.60	16.60	-2.70													100		Viton Stinger
HSVE-102	11/16/15	Zone 1	N. Olive	ND	13.90	14.20	12.60	16.60	1.30	12.98	295	16.4	20.3	0.30	279	0.00	4.00	25.3	1.24	107	62.0	100		Viton Stinger
HSVE-102	11/23/15	Zone 1	N. Olive	ND	10.68	14.24	12.60	16.60	-1.92													100		Viton Stinger
HSVE-102	11/24/15	Zone 1	N. Olive	ND	13.35	14.40	12.60	16.60	0.75	12.98								43.9	3.64	103	55.0	100		Viton Stinger
HSVE-102	11/30/15	Zone 1	N. Olive	ND	13.28	14.10	12.60	16.60	0.68													100		Viton Stinger
HSVE-102	12/07/15	Zone 1	N. Olive	ND	13.30	14.20	12.60	16.60	0.70	12.98	1,597	130	20.4	0.40	1,467	2.00	32.0	38.4	2.70	94.0	53.0	100		Viton Stinger
HSVE-102	12/28/15	Zone 1	N. Olive	NA	NA	14.20	12.60	16.60		12.98												0		Viton Stinger
HSVE-102	12/30/15	Zone 1	N. Olive	NA	13.85	14.28	12.60	16.60	1.25	12.98												0		Viton Stinger
HSVE-102	12/31/15	Zone 1	N. Olive	NA	13.88	14.25	12.60	16.60	1.28	12.98												0		Viton Stinger
HSVE-102	01/04/16	Zone 1	N. Olive	ND	14.10	14.25	12.60	16.60	1.50													0		Viton Stinger
HSVE-102	01/12/16	Zone 1	N. Olive	ND	13.60	14.15	12.60	16.60	1.00	12.98	407	8.45	20.3	0.30	399	0.00	6.00	34.5	2.28	114	43.0	100		Viton Stinger
HSVE-102	01/19/16	Zone 1	N. Olive	ND	13.55	14.20	12.60	16.60	0.95													100		Viton Stinger
HSVE-102	01/25/16	Zone 1	N. Olive	ND	13.20	14.25	12.60	16.60	0.60													100		Viton Stinger
HSVE-102	02/09/16	Zone 1	N. Olive	ND	13.22	14.25	12.60	16.60	0.62													100		Viton Stinger
HSVE-102	02/22/16	Zone 1	N. Olive	ND	13.23	14.32	12.60	16.60	0.63	12.98	2,471	78.4	20.6	0.30	2,393	2.00	16.0			105		100		Viton Stinger
HSVE-102	03/08/16	Zone 1	N. Olive	ND	13.18	14.15	12.60	16.60	0.58													100		Viton Stinger
HSVE-102	03/21/16	Zone 1	N. Olive	ND	13.91	14.33	12.60	16.60	1.31	12.98	1,993	157	20.6	0.30	1,836	4.00	24.0	15.1	0.43	103	52.0	100		Viton Stinger
HSVE-103	10/05/15	Zone 1	A/B Clay	ND	15.60	16.38	6.60	16.00	9.00													100		Viton Stinger
HSVE-103	10/12/15	Zone 1	A/B Clay	ND	15.55	16.35	6.60	16.00	8.95	13.50	275	128	20.6	0.20	147	0.00	18.0	38.7	2.99	112	68.0	100		Viton Stinger
HSVE-103	10/26/15	Zone 1	A/B Clay	ND	15.57	16.39	6.60	16.00	8.97													100		Viton Stinger
HSVE-103	11/09/15	Zone 1	A/B Clay	ND	15.48	16.32	6.60	16.00	8.88													100		Viton Stinger
HSVE-103	11/16/15	Zone 1	A/B Clay	ND	15.58	16.40	6.60	16.00	8.98	13.50	125	53.6	20.7	0.10	71.4	0.00	6.00	39.9	3.03	105	57.0	100		Viton Stinger
HSVE-103	11/30/15	Zone 1	A/B Clay	ND	15.50	16.34	6.60	16.00	8.90													100		Viton Stinger
HSVE-103	12/07/15	Zone 1	A/B Clay	ND	15.58	16.30	6.60	16.00	8.98	13.50	2,282	782	20.2	0.30	1,500	2.00	98.0	23.2	1.00	99.0	52.0	100		Viton Stinger
HSVE-103	01/04/16	Zone 1	A/B Clay	ND	8.60	15.36	6.60	16.00	2.00													100		Viton Stinger
HSVE-103	01/11/16	Zone 1	A/B Clay	ND	12.00	16.36	6.60	16.00	5.40	13.50	38.0	35.2	20.7	0.10	2.82	0.00	11.0	27.8	1.38	97.0	36.0	100		Viton Stinger
HSVE-103	01/19/16	Zone 1	A/B Clay	ND	11.95	16.30	6.60	16.00	5.35													100		Viton Stinger
HSVE-103	01/25/16	Zone 1	A/B Clay	ND	11.97	15.35	6.60	16.00	5.37													100		Viton Stinger
HSVE-103	02/08/16	Zone 1	A/B Clay	ND	10.50	16.30	6.60	16.00	3.90													100		Viton Stinger
HSVE-103	02/22/16	Zone 1	A/B Clay	ND	12.06	16.25	6.60	16.00	5.46	13.50	117	87.6	20.8	0.00	29.4	0.00	26.0	14.7	0.37	76.0	46.0	100		Viton Stinger
HSVE-103	03/08/16	Zone 1	A/B Clay	ND	12.02	16.33	6.60	16.00	5.42													100		Viton Stinger
HSVE-103	03/21/16	Zone 1	A/B Clay	ND	12.17	15.35	6.60	16.00	5.57	13.50	347	343	20.5	0.10	4.29	0.00	84.0	17.1	0.51	84.0	47.0	100		Viton Stinger
HSVE-105D	10/05/15	Zone 1		ND	29.24	46.80	32.80	42.80	-3.56													0		None
HSVE-105D	10/12/15	Zone 1		29.00	31.40	46.80	32.80	42.80	-3.80													0		None
HSVE-105D	10/26/15	Zone 1		31.12	33.85	46.75	32.80	42.80	-1.68													0		None
HSVE-105D	11/09/15	Zone 1		31.50	31.80	48.45	32.80	42.80	-1.30													0		None
HSVE-105D	11/16/15	Zone 1		31.10	32.65	46.80	32.80	42.80	-1.70		5.00	5.00	20.8	0.00	0.00	0.00	1.00					0		None
HSVE-105D	11/30/15	Zone 1		28.82	31.20	47.00	32.80	42.80	-3.98													0		None
HSVE-105D	12/07/15	Zone 1		27.00	30.88	48.00	32.80	42.80	-5.80		420	420	20.8	0.00	0.00	0.00	105					0		None
HSVE-105D	01/04/16	Zone 1		17.30	27.22	46.92	32.80	42.80	-15.50													0		None
HSVE-105D	01/11/16	Zone 1		20.38	28.50	46.90	32.80	42.80	-12.42													0		None
HSVE-105D	02/08/16	Zone 1		ND	27.26	27.00	32.80	42.80	-5.54													0		None
HSVE-105D	02/22/16	Zone 1		ND	28.75	47.00	32.80	42.80	-4.05													0		None
HSVE-105D	03/08/16	Zone 1		28.66	32.30	47.00	32.80	42.80	-4.14													0		None
HSVE-105D	03/21/16	Zone 1		29.15	31.82	47.00	32.80	42.80	-3.65													0		None
HSVE-105S	10/01/15	Zone 1		NA	NA	22.58	12.60	17.60														0	100	Straw Stinger
HSVE-105S	10/05/15	Zone 1		ND	18.08	22.60	12.60	17.60	5.00													0		Straw Stinger
HSVE-105S	10/12/15	Zone 1		ND	2130.00	22.60	12.60	17.60	5.00		38.0	38.0	20.8	0.00	0.00	0.00	10.0					0	0	Straw Stinger
HSVE-105S	10/16/15	Zone 1		NA	NA	22.60	12.60	17.60														0	100	Straw Stinger
HSVE-105S	10/26/15	Zone 1			18.12	22.50	12.60	17.60														0	100	Straw Stinger
HSVE-105S	11/09/15	Zone 1		ND	18.15	22.54	12.60	17.60	5.00													0	100	Straw Stinger
HSVE-105S	11/16/15	Zone 1		ND	21.15	22.60	12.60	17.60	5.00		15.0	12.1	20.8	0.00	2.86	0.00	2.00		2.14	115		0	100	Straw Stinger
HSVE-105S	11/30/15	Zone 1		ND	18.12	22.50	12.60	17.60	5.00													0	100	Straw Stinger
HSVE-105S	12/07/15	Zone 1		ND	21.12	26.60	12.60	17.60	5.00		510	510	20.8	0.00	0.00	0.00	117	57.1	1.19	109	58.0	0	100	Straw Stinger

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-105S	12/30/15	Zone 1		NA	18.12	22.62	12.60	17.60	5.00													0	100	Straw Stinger
HSVE-105S	12/31/15	Zone 1		NA	18.13	22.62	12.60	17.60	5.00														100	Straw Stinger
HSVE-105S	01/04/16	Zone 1		ND	18.14	22.52	12.60	17.60	5.00														100	Straw Stinger
HSVE-105S	01/11/16	Zone 1		ND	15.80	22.40	12.60	17.60	3.20		55.0	38.1	20.7	0.10	16.9	0.00	13.0	32.1	0.38	121	41.0	0	100	Straw Stinger
HSVE-105S	01/25/16	Zone 1		ND	17.30	22.52	12.60	17.60	4.70													0	100	Straw Stinger
HSVE-105S	02/08/16	Zone 1		ND	17.84	22.52	12.60	17.60	5.00													0	100	Straw Stinger
HSVE-105S	02/22/16	Zone 1		ND	18.15	22.50	12.60	17.60	5.00		130	104	20.8	0.00	26.5	0.00	29.0	52.3	0.98	108	50.0	0	100	Straw Stinger
HSVE-105S	03/08/16	Zone 1		ND	17.76	22.55	12.60	17.60	5.00													0	100	Straw Stinger
HSVE-105S	03/21/16	Zone 1		ND	17.78	22.25	12.60	17.60	5.00		378	378	20.8	0.00	0.00	0.00	87.0	46.6	0.80	117	49.0	0	100	Straw Stinger
HSVE-106D	10/05/15	Zone 1		ND	31.90	44.00	29.13	39.13	2.77													0	0	Straw Stinger
HSVE-106D	10/12/15	Zone 1		ND	32.00	44.00	29.13	39.13	2.87		20.0	20.0	20.8	0.00	0.00	0.00	5.00					0	0	Straw Stinger
HSVE-106D	10/15/15	Zone 1		NA	NA	44.00	29.13	39.13														50	0	Straw Stinger
HSVE-106D	10/16/15	Zone 1		NA	NA	44.00	29.13	39.13														0	100	Straw Stinger
HSVE-106D	10/26/15	Zone 1		ND	32.45	44.00	29.13	39.13	3.32													0	100	Straw Stinger
HSVE-106D	11/09/15	Zone 1		ND	32.28	44.00	29.13	39.13	3.15													0	100	Straw Stinger
HSVE-106D	11/16/15	Zone 1		ND	32.10	44.00	29.13	39.13	2.97		35.0	29.3	20.8	0.00	5.71	0.00	5.00	18.8	0.13	113	56.0	0	100	Straw Stinger
HSVE-106D	11/23/15	Zone 1		ND	31.66	44.00	29.13	39.13	2.53													0	100	Straw Stinger
HSVE-106D	12/08/15	Zone 1		ND	29.60	44.00	29.13	39.13	0.47		55.0	55.0	20.8	0.00	0.00	0.00	16.0	56.2	1.17	116	52.0	0	100	Straw Stinger
HSVE-106D	01/04/16	Zone 1		ND	20.85	44.00	29.13	39.13	-8.28													0	100	Straw Stinger
HSVE-106D	01/12/16	Zone 1		ND	23.08	44.00	29.13	39.13	-6.05													0	0	Straw Stinger
HSVE-106D	01/25/16	Zone 1		ND	28.20	44.00	29.13	39.13	-0.93													0	0	Straw Stinger
HSVE-106D	02/09/16	Zone 1		ND		44.00	29.13	39.13														0	0	Straw Stinger
HSVE-106D	02/22/16	Zone 1		ND	29.00	44.00	29.13	39.13	-0.13													0	0	Straw Stinger
HSVE-106D	03/08/16	Zone 1		ND	31.62	44.00	29.13	39.13	2.49													0		Straw Stinger
HSVE-106D	03/22/16	Zone 1		ND	31.10	44.00	29.13	39.13	1.97		32.0	32.0	20.7	0.00	0.00	0.00	12.0					0	0	Straw Stinger
HSVE-106D	03/28/16	Zone 1		NA	NA	44.00	29.13	39.13														0	100	Straw Stinger
HSVE-106S	10/01/15	Zone 1		NA	NA	18.70	9.16	14.16														0		None
HSVE-106S	10/05/15	Zone 1		ND	13.82	18.66	9.16	14.16	4.66													0		None
HSVE-106S	10/12/15	Zone 1		ND	14.07	18.72	9.16	14.16	4.91													0		None
HSVE-106S	10/15/15	Zone 1		NA	NA	18.72	9.16	14.16														0		None
HSVE-106S	10/26/15	Zone 1		ND	15.05	18.67	9.16	14.16	5.00													0		None
HSVE-106S	11/09/15	Zone 1		ND	15.47	18.63	9.16	14.16	5.00													0		None
HSVE-106S	11/16/15	Zone 1		ND	14.25	18.72	9.16	14.16	5.00		25.0	25.0	20.8	0.00	0.00	0.00	5.00					0		None
HSVE-106S	11/30/15	Zone 1		NA	NA	18.72	9.16	14.16														50		None
HSVE-106S	12/08/15	Zone 1		ND	14.21	18.72	9.16	14.16	5.00		70.0	68.6	20.8	0.00	1.41	0.00	19.0	11.9	0.05	101	52.0	50		None
HSVE-106S	01/04/16	Zone 1		ND	12.25	13.65	9.16	14.16	3.09													50		None
HSVE-106S	01/12/16	Zone 1		ND	12.23	13.62	9.16	14.16	3.07		4.00	4.00	20.8	0.00	0.00	0.00	1.00	29.9	0.32	113	40.0	0	100	None
HSVE-106S	01/25/16	Zone 1		ND	11.95	13.65	9.16	14.16	2.79													0	100	None
HSVE-106S	02/09/16	Zone 1		ND	12.33	13.65	9.16	14.16	3.17													0	100	None
HSVE-106S	02/22/16	Zone 1		ND	Dry	16.65	9.16	14.16	5.00		56.0	56.0	20.8	0.00	0.00	0.00	17.0	45.7	0.74	106	47.0	50	100	None
HSVE-106S	03/08/16	Zone 1		ND	11.80	13.47	9.16	14.16	2.64													50		None
HSVE-106S	03/14/16	Zone 1		NA	NA	13.47	9.16	14.16														66.7		None
HSVE-106S	03/22/16	Zone 1		ND	12.12	13.40	9.16	14.16	2.96		30.0	27.1	20.8	0.00	2.94	0.00	10.0	66.4	1.54	104	43.0	66.7	50	None
HSVE-107D	10/05/15	Zone 1		ND	28.85	50.38	33.90	43.90	-5.05													0	0	Straw Stinger
HSVE-107D	10/12/15	Zone 1		ND	31.88	48.70	33.90	43.90	-2.02		55.0	55.0	20.8	0.00	0.00	0.00	14.0					0	0	Straw Stinger
HSVE-107D	10/26/15	Zone 1		ND	30.80	48.64	33.90	43.90	-3.10													0	0	Straw Stinger
HSVE-107D	11/09/15	Zone 1		ND	30.68	48.75	33.90	43.90	-3.22													0	0	Straw Stinger
HSVE-107D	11/16/15	Zone 1		ND	32.91	48.70	33.90	43.90	-0.99		7.00	7.00	20.8	0.00	0.00	0.00	2.00					0	0	Straw Stinger
HSVE-107D	11/30/15	Zone 1		ND	27.80	48.75	33.90	43.90	-6.10													0	0	Straw Stinger
HSVE-107D	12/07/15	Zone 1		ND	26.65	48.55	33.90	43.90	-7.25		212	212	20.7	0.00	0.00	0.00	52.0					0	0	Straw Stinger
HSVE-107D	01/04/16	Zone 1		ND	17.97	48.75	33.90	43.90	-15.93													0		Straw Stinger
HSVE-107D	01/11/16	Zone 1		ND	19.12	48.70	33.90	43.90	-14.78													0	0	Straw Stinger
HSVE-107D	01/25/16	Zone 1		ND	25.25	48.74	33.90	43.90	-8.65													0	0	Straw Stinger
HSVE-107D	01/25/16	Zone 1		25.30	32.80	47.05	33.90	43.90	-8.60													0	0	Straw Stinger
HSVE-107D	02/08/16	Zone 1		ND	26.70	48.80	33.90	43.90	-7.20													0	0	Straw Stinger
HSVE-107D	02/22/16	Zone 1		ND	28.30	48.70	33.90	43.90	-5.60													0	0	Straw Stinger
HSVE-107D	03/08/16	Zone 1		ND	28.45	48.75	33.90	43.90	-5.45													0	0	Straw Stinger
HSVE-107D	03/21/16	Zone 1		ND	28.40	48.00	33.90	43.90	-5.50													0	0	Straw Stinger

APPENDIX B. ROUTINE VAPOR COLLECTION SYSTEM MONITORING RESULTS
OCTOBER 2015 - MARCH 2016
HARTFORD PETROLEUM RELEASE SITE, HARFORD, ILLINOIS

				Fluid Level and Stinger Data							Soil Vapor Field Screening Results							Flow Rate Estimation Data				SVE Control Valve Data		
Location	Date	Zone	Stratum	Depth to Product ft-btoc	Depth to Groundwater ft-btoc	Total Depth ft-btoc	Top of Screen ft-btoc	Bottom of Screen ft-btoc	Open Screen ft	Stinger Depth ft-btoc	Total Volatile Petroleum Hydrocarbons ppmv	Petroleum Hydrocabons ppmv	Oxygen %	Carbon Dioxide %	Methane ppmv	LEL %	PID Reading ppmv	Flow Rate scfm	Differential Pressure in-H_2O	SVE Wellhead Vacuum in-H_2O	Venturi Surface Temperature °F	Header Valve Percent Open %	Straw Stinger Valve Percent Open %	Stinger Type
HSVE-107S	10/01/15	Zone 1		NA	NA	16.10	9.21	14.21														0	100	Straw Stinger
HSVE-107S	10/05/15	Zone 1		ND	14.38	16.50	9.21	14.21	5.00													0		Straw Stinger
HSVE-107S	10/12/15	Zone 1		ND	14.55	16.15	9.21	14.21	5.00		105	104	20.8	0.00	1.39	0.00	22.0					0	0	Straw Stinger
HSVE-107S	10/12/15	Zone 1		ND	14.55	16.15	9.21	14.21	5.00		42.0	39.2	20.8	0.00	2.78	0.00	9.00					0	0	Straw Stinger
HSVE-107S	10/15/15	Zone 1		NA	NA	16.15	9.21	14.21														0	0	Straw Stinger
HSVE-107S	10/16/15	Zone 1		NA	NA	16.15	9.21	14.21														0	100	Straw Stinger
HSVE-107S	10/26/15	Zone 1		ND	14.42	16.07	9.21	14.21	5.00													0	100	Straw Stinger
HSVE-107S	11/03/15	Zone 1								29.51												0	100	Straw Stinger
HSVE-107S	11/09/15	Zone 1		ND	14.45	16.10	9.21	14.21	5.00													0	100	Straw Stinger
HSVE-107S	11/16/15	Zone 1		ND	14.85	16.15	9.21	14.21	5.00		9.00	9.00	20.8	0.00	0.00	0.00	2.00	15.6	0.09	115	56.0	0	100	Straw Stinger
HSVE-107S	11/30/15	Zone 1		ND	14.65	16.16	9.21	14.21	5.00													0	100	Straw Stinger
HSVE-107S	12/07/15	Zone 1		ND	14.95	16.60	9.21	14.21	5.00		322	313	20.6	0.00	8.57	0.00	72.0	21.0	0.16	112	49.0	0	100	Straw Stinger
HSVE-107S	12/29/15	Zone 1		NA	11.16	16.05	9.21	14.21	1.95	26.70												0	100	Straw Stinger
HSVE-107S	12/30/15	Zone 1		NA	11.80	16.00	9.21	14.21	2.59													0	100	Straw Stinger
HSVE-107S	12/31/15	Zone 1		NA	12.17	16.00	9.21	14.21	2.96														100	Straw Stinger
HSVE-107S	01/04/16	Zone 1		ND	12.64	15.98	9.21	14.21	3.43														100	Straw Stinger
HSVE-107S	01/11/16	Zone 1		ND	12.85	15.95	9.21	14.21	3.64		8,920	3,821	20.5	0.40	5,099	11.0	233	31.2	0.35	115	38.0	0	100	Straw Stinger
HSVE-107S	01/19/16	Zone 1		ND	13.15	15.75	9.21	14.21	3.94													0	100	Straw Stinger
HSVE-107S	01/25/16	Zone 1		ND	13.11	15.93	9.21	14.21	3.90													0	100	Straw Stinger
HSVE-107S	02/08/16	Zone 1		ND	13.79	15.95	9.21	14.21	4.58													0	100	Straw Stinger
HSVE-107S	02/22/16	Zone 1		ND	13.75	18.11	9.21	14.21	4.54		67.0	59.7	20.8	0.00	7.35	0.00	17.0	52.6	0.98	106	48.0	0	100	Straw Stinger
HSVE-107S	03/08/16	Zone 1		ND	15.37	15.94	9.21	14.21	5.00													0	100	Straw Stinger
HSVE-107S	03/21/16	Zone 1		ND	13.75	16.00	9.21	14.21	4.54		362	362	20.8	0.00	0.00	0.00	89.0	59.2	1.29	113	55.0	0	100	Straw Stinger
MPE-A001	10/14/15			27.86	29.15	45.12																0		
MPE-A001	01/07/16			20.19	20.26	45.12																0		
MPE-A002	10/02/15			18.04	29.90	45.84					6.00	6.00	20.7	0.00	0.00	0.00	2.00	19.9	0.71	142	68.0	16.7		
MPE-A002	10/02/15			NA	NA	45.84					6.00	6.00	20.7	0.00	0.00	0.00	2.00	19.9	0.71	142	68.0	16.7		
MPE-A002	10/14/15			27.58	31.12	45.84																16.7		
MPE-A002	10/22/15										7,230	2,646	20.8	0.00	4,584	5.00	200					16.7		
MPE-A002	11/11/15			NA	NA	45.84																16.7		
MPE-A002	01/07/16			13.71	17.41	45.84																16.7		
MPE-A003	10/14/15			27.48	27.87	44.80																0		
MPE-A003	01/07/16			19.60	19.69	44.80																0		
MPE-A004	10/14/15			ND	28.65	46.72																0		
MPE-A004	01/07/16			20.72	20.92	46.72																0		
MPE-A005	10/14/15			28.25	30.28	46.40																0		
MPE-A005	01/07/16			20.53	22.70	46.40																0		

Notes:
ft-btoc - feet below top of casing
ft - feet
ppmv - parts per million by volume
% - percent
in-H_2O- inches of water
°F - degrees Fahrenheit

APPENDIX C

APPENDIX C-1. EFFECTIVENESS MONITORING, FOURTH QUARTER 2015 VAPOR SCREENING RESULTS
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location	Date	Effectiveness Zone	Subsurface Layer	Static Pressure/ Vacuum (in-H_2O)	Estimated Soil Gas Permeability (cm^2)	Probe Specific Capacity (cm^3/s·in H_2O)	Oxygen (%)	Carbon Dioxide (%)	Lower Explosive Level (%)	Methane (ppmv)	FID TVPH Concentration (ppmv)	FID PHC Concentration (ppmv)	PID Volatile Organic Chemicals (ppmv)	Well Diameter (inches)	Well Plug Replaced	Wellhead Reduction (inches)
HMW-053A	11/17/2015	Zone 4	N Olive	-0.83	3.65E-09	-10.02	16.1	6.5	0	156	370	214	6.00	2.00	N	--
HMW-054A	11/17/2015	Zone 4	N Olive	0.00	5.04E-09	-13.81	14.0	3.3	0	0.00	18.0	18.0	0.00	2.00	Y	0.50
MP-012S	11/18/2015	Zone 2	A Clay	0.00	1.12E-08	-28.65	18.2	1.3	0	0.00	30.0	30.0	12.0	1.00	**N**	--
MP-016S	11/18/2015	Zone 4	A Clay	0.00	9.71E-09	-21.70	16.1	3.5	0	0.00	0.00	0.00	0.00	1.00	Y	1.51
MP-022	11/19/2015	Zone 4	Backfill	0.00	2.04E-09	-0.38	20.7	0.0	0	0.00	2.00	2.00	2.00	0.13	N	--
MP-029A	11/17/2015	Zone 6	N Olive	0.00	1.91E-08	-20.00	0.1	16.0	100	330,000	420,000	90,000	26.0	1.00	Y	--
MP-030A	11/15/2015	Zone 1	N Olive	0.00	3.96E-09	-20.75	15.9	7.4	0	0.00	0.00	0.00	0.00	1.00	Y	--
MP-031A	11/15/2015	Zone 1	A Clay	0.00	7.67E-09	-12.08	16.3	2.9	0	14.1	14.4	0.32	17.4	1.00	N	--
MP-032A	11/18/2015	Zone 1	N Olive	-0.14	9.96E-09	-10.47	10.7	9.0	0	760	1,250	490	7.00	1.00	Y	--
MP-033A	11/18/2015	Zone 2	A Clay	-2.57	2.23E-08	-35.00	20.2	0.7	0	0.00	5.00	5.00	2.00	1.00	N	--
MP-033B	11/18/2015	Zone 1	N Olive	-1.28	3.58E-09	-5.03	0.7	21.8	100	1,000,000	1,670,000	670,000	280	1.00	**N**	--
MP-034A	11/17/2015	Zone 1	N Olive	0.00	2.04E-09	-1.50	19.5	0.7	0	0.00	7.00	7.00	2.00	1.00	**N**	--
MP-035A	11/15/2015	Zone 1	A Clay	-2.59	1.15E-08	-18.04	20.9	0.0	0	11.0	11.6	0.61	5.10	1.00	Y	--
MP-035B	11/15/2015	Zone 1	N Olive	-2.02	7.02E-09	-14.73	20.9	0.0	0	7.00	7.00	0.00	3.90	1.00	**N**	--
MP-036A	11/17/2015	Zone 1	N Olive	0.00	2.62E-08	-36.15	10.6	12.3	0	10.0	25.0	15.0	0.00	1.00	**N**	--
MP-037A	11/17/2015	Zone 6	N Olive	0.08	1.18E-09	-3.12	0.6	6.8	0	6.00	11.0	5.00	0.00	1.00	Y	--
MP-038A	11/18/2015	Zone 2	N Olive	0.00	4.79E-09	-10.08	4.0	9.8	0	0.00	50.0	50.0	2.00	1.00	Y	--
MP-039A	11/18/2015	Zone 2	N Olive	0.00	2.05E-08	-53.68	15.8	5.9	0	0.00	25.0	25.0	1.00	1.00	Y	--
MP-040A	11/19/2015	Zone 2	A Clay	-0.11	1.84E-08	-43.21	19.8	1.0	0	0.00	2.00	2.00	2.00	1.00	Y	--
MP-041A	11/17/2015	Zone 6	N Olive	0.14	4.50E-09	-4.76	4.3	7.0	0	0.00	0.00	0.00	0.00	1.00	Y	--
MP-042A	11/17/2015	Zone 6	N Olive	0.00	1.20E-08	-62.81	10.0	11.6	0	0.00	40.0	40.0	0.00	1.00	Y	--
MP-043A	11/18/2015	Zone 2	N Olive	0.00	2.83E-09	-3.00	4.8	13.2	0	0.00	10.0	10.0	0.00	1.00	**N**	--
MP-043B	11/18/2015	Zone 2	Main Silt	0.00	8.47E-09	-20.62	1.2	14.5	0	0.00	17.0	17.0	1.00	1.00	Y	--
MP-044A	11/17/2015	Zone 5	A Clay	-1.70	1.98E-08	-31.07	20.4	0.3	0	3.86	7.00	3.14	0.00	1.00	Y	0.35
MP-044B	11/17/2015	Zone 5	N Olive	-0.89	6.64E-09	-6.99	20.4	0.0	0	0.00	17.0	17.0	1.00	1.00	Y	--
MP-045A	11/17/2015	Zone 5	N Olive	-0.25	1.82E-09	-3.84	0.4	16.3	100	100,000	570,000	470,000	480	1.00	**N**	--
MP-046A	11/17/2015	Zone 5	N Olive	0.00	1.10E-08	-34.64	17.5	2.4	0	0.00	22.0	22.0	3.00	1.00	Y	0.65
MP-047A	11/17/2015	Zone 5	N Olive	0.00	3.59E-09	-11.33	13.6	2.1	0	0.00	10.0	10.0	0.00	1.00	Y	--
MP-048A	11/18/2015	Zone 2	N Olive	0.00	9.62E-09	-50.42	16.7	5.6	0	0.00	9.00	9.00	4.60	1.00	N	--
MP-049A	11/19/2015	Zone 2	A Clay	0.00	5.96E-09	-15.64	18.3	2.0	0	0.00	4.00	4.00	2.00	1.00	Y	0.48
MP-050A	11/17/2015	Zone 5	A Clay	0.00	6.84E-10	-2.13	0.8	12.2	100	160,000	235,000	75,000	39.0	1.00	Y	--
MP-051B	11/17/2015	Zone 5	N Olive	0.00	6.83E-09	-7.20	2.8	10.1	2	500	2,520	2,020	13.0	1.00	Y	--
MP-052A	11/17/2015	Zone 5	A Clay	-0.06	1.03E-08	-21.70	18.1	2.6	0	0.00	0.00	0.00	0.00	1.00	Y	--
MP-053A	11/17/2015	Zone 5	A Clay	0.00	1.35E-09	-3.56	15.7	2.3	0	0.00	0.00	0.00	0.00	1.00	Y	0.66
MP-054A	11/17/2015	Zone 5	Area A, N Olive	-0.10	6.45E-09	-16.92	19.8	0.7	0	0.00	2.00	2.00	0.00	1.00	Y	--
MP-055A	11/17/2015	Zone 5	Area A, N Olive	0.00	1.67E-09	-8.76	0.2	7.4	49	35,000	73,000	38,000	104	1.00	Y	--
MP-056A	11/17/2015	Zone 5	Area A, N Olive	0.00	1.27E-08	-33.25	17.6	3.5	0	1.43	7.00	5.57	1.50	1.00	Y	0.88
MP-057A	11/17/2015	Zone 4	Area A, N Olive	-0.52	1.32E-09	-4.88	20.0	0.5	0	0.00	1.50	1.50	0.00	1.00	Y	--

APPENDIX C-1. EFFECTIVENESS MONITORING, FOURTH QUARTER 2015 VAPOR SCREENING RESULTS
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location	Date	Effectiveness Zone	Subsurface Layer	Static Pressure/ Vacuum (in-H_2O)	Estimated Soil Gas Permeability (cm^2)	Probe Specific Capacity ($cm^3/s \cdot in\ H_2O$)	Oxygen (%)	Carbon Dioxide (%)	Lower Explosive Level (%)	Methane (ppmv)	FID TVPH Concentration (ppmv)	FID PHC Concentration (ppmv)	PID Volatile Organic Chemicals (ppmv)	Well Diameter (inches)	Well Plug Replaced	Wellhead Reduction (inches)
MP-058A	11/17/2015	Zone 4	A Clay	0.00	3.53E-08	-73.99	20.0	0.9	0	0.00	0.00	0.00	0.00	1.00	N	--
MP-059A	11/17/2015	Zone 4	A Clay	0.00	7.48E-10	-0.87	18.2	2.0	0	0.00	13.0	13.0	1.00	1.00	Y	--
MP-059B	11/17/2015	Zone 4	Main Silt	-0.07	1.47E-08	-46.21	18.6	1.6	0	0.00	0.00	0.00	0.00	1.00	Y	--
MP-060A	11/17/2015	Zone 4	A Clay	-0.25	1.65E-08	-34.64	20.4	0.5	0	0.00	0.00	0.00	0.00	1.00	N	--
MP-064A	11/16/2015	Zone 4	A Clay	0.00	2.50E-09	-5.27	18.8	2.5	0	0.00	6.00	6.00	4.00	1.00	Y	0.50
MP-068	11/15/2015	Zone 1	N Olive	0.00	4.16E-09	-15.50	12.1	8.4	0	0.00	0.00	0.00	0.00	1.00	Y	--
MP-078A	11/15/2015	Zone 1	A Clay	0.00	2.71E-08	-28.41	15.0	2.0	0	0.00	14.0	14.0	0.48	1.00	Y	--
MP-078B	11/15/2015	Zone 1	N Olive	0.00	6.63E-09	-6.98	20.9	0.0	0	11.7	17.1	5.41	7.10	1.00	Y	--
MP-079A	11/17/2015	Zone 1	N Olive	0.00	1.92E-08	-44.36	0.2	20.5	100	75,000	172,000	97,000	144	1.00	**N**	--
MP-080A	11/17/2015	Zone 1	N Olive	-0.35	4.15E-09	-23.07	20.3	0.5	0	0.00	0.00	0.00	0.00	1.00	**N**	--
MP-083A	11/15/2015	Zone 1	N Olive	0.00	6.77E-09	-9.61	3.1	15.3	4	5,220	6,060	840	30.0	1.00	Y	--
MP-084A	11/18/2015	Zone 2	A Clay	-0.60	1.15E-08	-16.84	20.5	0.0	0	0.00	10.0	10.0	4.00	1.00	Y	--
MP-085A	11/17/2015	Zone 6	N Olive	0.00	1.98E-07	-52.83	20.5	0.0	0	84.3	92.0	7.71	1.00	1.00	Y	--
MP-086A	11/19/2015	Zone 3	A Clay	0.00	1.57E-08	-16.50	19.7	0.4	0	0.00	3.00	3.00	0.00	1.00	N	--
MP-087A	11/18/2015	Zone 2	A Clay	-3.46	2.85E-09	-1.53	20.6	0.0	0	0.00	23.0	23.0	8.00	1.00	Y	--
MP-088A	11/16/2015	Zone 4	A Clay	-7.39	1.88E-10	-0.45	16.2	1.3	0	0.00	6.00	6.00	4.00	1.00	Y	0.33
MP-088B	11/16/2015	Zone 4	Main Silt	-0.20	1.14E-08	-27.47	20.1	1.1	0	0.00	7.00	7.00	3.00	1.00	Y	0.54
MP-090A	11/19/2015	Zone 2	A Clay	-0.49	6.19E-09	-1.15	20.8	0.0	0	0.00	8.00	8.00	3.00	0.13	Y	--
MP-090B	11/18/2015	Zone 2	Main Silt	-7.02	6.04E-08	-31.66	20.8	0.0	0	0.00	12.0	12.0	5.00	1.00	Y	--
MP-091B	11/18/2015	Zone 2	Main Silt	0.00	1.65E-08	-8.69	6.8	10.3	0	0.00	30.0	30.0	0.00	1.00	Y	--
MP-112M	11/18/2015	Zone 2	Main Silt	-0.12	2.39E-08	-10.05	6.7	4.4	0	0.00	49.0	49.0	1.90	0.50	N	--
MP-112S	11/18/2015	Zone 2	N Olive	-0.06	5.57E-08	-23.39	10.2	6.5	0	0.00	0.00	0.00	0.00	0.50	N	--
MP-113M	11/19/2015	Zone 2	Main Silt	-0.45	4.76E-08	-20.00	20.5	0.0	0	1.39	21.0	19.6	6.00	0.50	N	--
MP-113S	11/19/2015	Zone 2	A Clay	-0.40	8.68E-09	-3.68	20.6	0.0	0	0.00	7.00	7.00	3.00	0.50	N	--
MP-114M	11/19/2015	Zone 2	Main Silt	-0.30	6.50E-09	-2.77	18.9	1.0	0	0.00	19.0	19.0	8.00	0.50	N	--
MP-114S	11/19/2015	Zone 2	A Clay	-0.28	1.74E-08	-7.34	20.0	1.0	0	0.00	22.0	22.0	8.00	0.50	N	--
MP-115S	11/18/2015	Zone 2	N Olive	0.00	4.91E-08	-20.62	6.0	11.6	0	0.00	0.00	0.00	0.00	0.50	N	--
MP-116S	11/18/2015	Zone 6	N Olive	0.00	3.60E-09	-1.55	4.9	18.5	100	85,000	160,000	75,000	342	0.50	N	--
MP-117S	11/18/2015	Zone 6	N Olive	0.00	5.30E-09	-2.26	0.9	26.2	100	80,000	185,000	105,000	301	0.50	N	--
MP-118S	11/18/2015	Zone 6	N Olive	0.00	2.75E-09	-1.19	11.0	9.4	50	55,000	75,000	20,000	16.0	0.50	N	--
MP-120S	11/19/2015	Zone 6	N Olive	0.00	5.31E-09	-2.26	11.3	6.5	100	115,000	150,000	35,000	8.00	0.50	N	--
MP-121S	11/18/2015	Zone 6	N Olive	0.00	6.14E-09	-2.61	13.8	7.1	9	10,500	13,500	3,000	1.00	0.50	N	--
MP-122S	11/18/2015	Zone 6	N Olive	0.00	3.85E-08	-16.18	18.0	1.0	0	0.00	13.0	13.0	5.00	0.50	N	--
MP-123S	11/18/2015	Zone 6	N Olive	-0.08	7.48E-08	-31.36	18.2	4.5	0	0.00	8.00	8.00	4.00	0.50	N	--
MP-124M	11/18/2015	Zone 6	N Olive	0.00	7.15E-09	-3.04	20.2	0.0	0	0.00	18.0	18.0	6.00	0.50	N	--
MP-124S	11/18/2015	Zone 6	N Olive	-0.09	5.49E-09	-2.34	14.1	3.2	0	0.00	0.00	0.00	0.00	0.50	N	--
MP-125S	11/18/2015	Zone 6	N Olive	0.00	1.23E-08	-5.21	11.6	3.1	0	0.00	13.0	13.0	0.00	0.50	N	--
MP-126M	11/18/2015	Zone 6	N Olive	0.00	3.60E-09	-1.55	18.7	0.3	0	0.00	6.00	6.00	2.50	0.50	N	--

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HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location	Date	Effectiveness Zone	Subsurface Layer	Static Pressure/ Vacuum	Estimated Soil Gas Permeability	Probe Specific Capacity	Oxygen	Carbon Dioxide	Lower Explosive Level	Methane	FID TVPH Concentration	FID PHC Concentration	PID Volatile Organic Chemicals	Well Diameter	Well Plug Replaced	Wellhead Reduction
				(in-H_2O)	(cm^2)	(cm^3/s·in H_2O)	(%)	(%)	(%)	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(inches)		(inches)
MP-126S	11/18/2015	Zone 6	N Olive	-0.06	3.42E-09	-1.47	17.3	0.3	0	0.00	4.00	4.00	1.70	0.50	N	--
MP-127D	11/19/2015	Zone 6	Rand	-0.62	1.97E-08	-8.31	0.7	17.2	100	100,000	165,000	65,000	205	0.50	N	--
MP-127M	11/19/2015	Zone 6	N Olive	-0.11	6.19E-09	-2.64	16.9	1.6	0	1.39	8.00	6.61	3.00	0.50	N	--
MP-127S	11/19/2015	Zone 6	N Olive	-0.06	8.36E-09	-3.54	18.8	0.5	0	2.78	7.00	4.22	2.00	0.50	N	--
MP-128S	11/19/2015	Zone 5	N Olive	0.00	2.01E-08	-8.47	16.4	6.0	0	0.00	1.00	1.00	1.00	0.50	N	--
MP-129S	11/19/2015	Zone 5	N Olive	-0.14	6.14E-09	-2.61	18.6	2.6	0	0.00	5.00	5.00	3.00	0.50	N	--
MP-130M	11/19/2015	Zone 4	N Olive	-4.59	1.34E-08	-5.65	11.3	4.3	0	0.00	0.00	0.00	0.00	0.50	N	--
MP-130S	11/19/2015	Zone 4	N Olive	-0.17	4.96E-09	-2.12	18.6	0.2	0	1.39	4.00	2.61	1.00	0.50	N	--
VMP-001S	11/13/2015	Zone 1	A Clay	0.00	4.18E-10	-0.08	18.7	2.3	0	19.4	22.8	3.43	0.00	0.50	Y	--
VMP-002D	11/13/2015	Zone 1	N Olive	0.00	7.88E-09	-1.47	20.0	0.0	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-006S	11/14/2015	Zone 1	N Olive	0.00	1.96E-09	-0.37	2.9	5.8	0	0.00	32.0	32.0	1.20	0.50	Y	--
VMP-007	11/15/2015	Zone 1	N Olive	-0.22	1.19E-08	-2.23	20.7	0.5	0	24.5	29.8	5.29	8.40	0.50	Y	--
VMP-015M	11/14/2015	Zone 5	B Clay	0.00	5.02E-09	-0.94	4.8	12.0	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-015S	11/14/2015	Zone 5	N Olive	0.00	9.29E-09	-1.73	18.7	2.5	0	0.00	12.0	12.0	5.00	0.50	Y	--
VMP-015VS	11/14/2015	Zone 5	A Clay	0.00	2.46E-09	-0.46	5.7	2.1	0	2,500	9,800	7,300	78.5	0.50	Y	--
VMP-023M	11/14/2015	Zone 1	N Olive	0.00	8.92E-09	-1.66	19.1	1.3	0	0.00	8.50	8.50	23.3	0.50	Y	--
VMP-023S	11/14/2015	Zone 1	N Olive	0.00	6.88E-10	-0.13	--	--	--	--	--	--	--	0.50	Y	--
VMP-026M	11/13/2015	Zone 4	A Clay	0.00	3.87E-09	-0.72	14.4	0.0	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-026S	11/13/2015	Zone 4	A Clay	0.00	3.44E-09	-0.64	11.7	0.0	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-027M	11/13/2015	Zone 1	B Clay	0.00	7.48E-08	-13.88	20.9	0.0	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-027S	11/13/2015	Zone 1	A Clay	0.00	6.09E-09	-1.13	20.4	0.0	0	0.00	1.50	1.50	0.00	0.50	Y	--
VMP-036S	11/15/2015	Zone 5	B Clay	0.00	2.41E-09	-0.45	2.0	8.3	1	930	1,420	490	1.00	0.50	Y	--
VMP-036VS	11/15/2015	Zone 5	A Clay	0.00	7.48E-09	-1.39	17.6	3.1	0	13.5	32.0	18.5	15.1	0.50	Y	--
VMP-052S	11/14/2015	Zone 1	A Clay	0.00	7.58E-09	-1.41	11.8	8.3	0	0.00	24.0	24.0	1.20	0.13	Y	--
VMP-053S	11/14/2015	Zone 1	N Olive	0.00	9.59E-09	-1.78	5.6	14.2	0	0.00	14.0	14.0	0.00	0.13	Y	--
VMP-053VS	11/14/2015	Zone 1	A Clay	0.00	1.58E-08	-2.94	16.6	4.7	0	0.00	8.10	8.10	4.10	0.13	Y	--
VMP-057VS	11/14/2015	Zone 1	A Clay	0.00	6.05E-08	-11.24	20.4	0.5	0	0.00	56.4	56.4	17.4	0.50	Y	--
VMP-058S	11/14/2015	Zone 1	N Olive	0.00	1.90E-08	-3.53	0.0	16.0	15	0.00	220,540	220,540	9.40	0.50	Y	--
VMP-058VS	11/15/2015	Zone 1	A Clay	0.00	2.03E-08	-3.77	0.0	17.0	21	206,900	31,900	175,000	2.30	0.50	Y	--
VMP-064M	11/14/2015	Zone 6	N Olive	0.00	3.72E-09	-0.69	2.5	5.1	43	5,420	64,250	58,830	501	--	Y	--
VMP-064S	11/14/2015	Zone 6	N Olive	0.00	1.79E-09	-0.34	1.6	7.6	0	26.0	168	142	6.55	0.50	Y	--
VMP-064VS	11/14/2015	Zone 6	A Clay	0.00	5.02E-09	-0.94	3.4	8.4	0	0.00	245	245	9.50	0.50	Y	--
VMP-065S	11/15/2015	Zone 5	N Olive	0.00	1.94E-09	-0.36	6.4	3.2	0	17.0	50.0	33.0	1.70	0.50	Y	--
VMP-065VS	11/15/2015	Zone 5	A Clay	0.00	5.14E-09	-0.96	0.1	5.2	3	735	4,300	3,565	85.6	0.50	Y	--
VMP-066M	11/13/2015	Zone 2	Main Silt	0.00	7.48E-09	-1.39	6.1	9.8	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-066S	11/14/2015	Zone 2	N Olive	0.00	1.31E-08	-2.44	10.7	10.3	0	0.00	234	234	6.00	0.50	Y	--
VMP-066VS	11/13/2015	Zone 2	A Clay	0.00	2.42E-08	-4.50	12.7	7.1	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-067S	11/13/2015	Zone 2	Main Silt	0.00	7.45E-09	-1.39	19.8	1.4	0	0.00	0.00	0.00	0.00	0.50	Y	--

APPENDIX C-1. EFFECTIVENESS MONITORING, FOURTH QUARTER 2015 VAPOR SCREENING RESULTS
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location	Date	Effectiveness Zone	Subsurface Layer	Static Pressure/ Vacuum (in-H_2O)	Estimated Soil Gas Permeability (cm^2)	Probe Specific Capacity ($cm^3/s \cdot in\ H_2O$)	Oxygen (%)	Carbon Dioxide (%)	Lower Explosive Level (%)	Methane (ppmv)	FID TVPH Concentration (ppmv)	FID PHC Concentration (ppmv)	PID Volatile Organic Chemicals (ppmv)	Well Diameter (inches)	Well Plug Replaced	Wellhead Reduction (inches)
VMP-067VS	11/13/2015	Zone 2	A Clay	0.00	2.16E-08	-4.01	20.0	0.0	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-068S	11/14/2015	Zone 5	Rand	0.00	8.33E-09	-1.55	0.0	17.7	9	0.00	13,850	13,850	350	0.50	Y	--
VMP-068VS	11/14/2015	Zone 5	A Clay	0.00	1.87E-08	-3.46	19.0	2.2	0	0.00	14.2	14.2	5.60	0.50	Y	--
VMP-069M	11/14/2015	Zone 5	Main Silt	-0.08	7.65E-09	-1.42	20.6	0.5	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-069VS	11/14/2015	Zone 5	A Clay	0.00	1.79E-08	-3.33	20.4	1.0	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-070M	11/14/2015	Zone 5	Rand	0.00	6.52E-09	-1.21	0.0	6.0	100	36,600	700,000	663,400	609	0.50	Y	--
VMP-071S	11/14/2015	Zone 5	N Olive	-0.06	4.24E-09	-0.79	20.8	0.0	0	13.6	16.5	2.94	1.80	0.50	Y	--
VMP-071VS	11/14/2015	Zone 5	A Clay	-0.13	1.27E-08	-2.36	20.9	0.0	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-073M	11/13/2015	Zone 3	Main Silt	-0.05	6.05E-09	-1.13	20.0	0.0	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-073S	11/13/2015	Zone 3	A Clay	-0.08	8.41E-09	-1.56	15.5	1.1	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-074M	11/15/2015	Zone 4	Main Silt	-0.22	4.69E-09	-0.87	19.5	1.2	0	1.41	28.9	30.3	14.1	0.50	Y	--
VMP-074VS	11/14/2015	Zone 4	A Clay	0.00	1.38E-08	-2.56	20.9	0.0	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-075S	11/14/2015	Zone 5	N Olive	0.00	7.71E-09	-1.43	10.7	9.9	0	0.00	12.0	12.0	0.00	0.50	Y	--
VMP-075VS	11/14/2015	Zone 5	A Clay	0.00	1.70E-08	-3.17	17.3	2.6	0	0.00	7.90	7.90	3.80	0.50	Y	--
VMP-076S	11/14/2015	Zone 5	N Olive	0.00	1.04E-08	-1.93	19.7	1.5	0	1.64	8.10	6.46	4.00	0.50	Y	--
VMP-076VS	11/14/2015	Zone 5	A Clay	0.00	1.07E-08	-1.99	22.2	0.9	0	0.00	5.40	5.40	4.60	0.50	Y	--
VMP-080S	11/14/2015	Zone 4	A Clay, Main Silt	0.00	2.75E-09	-0.51	6.0	0.6	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-080VS	11/14/2015	Zone 4	A Clay	0.00	1.38E-08	-2.56	20.4	0.3	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-081M	11/13/2015	Zone 4	Main Silt	0.00	6.90E-09	-1.28	19.2	1.3	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-081S	11/13/2015	Zone 4	A Clay	0.00	9.97E-09	-1.85	19.8	1.1	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-089S	11/13/2015	Zone 1	N Olive	-0.52	4.51E-09	-0.84	20.6	0.0	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-089VS	11/13/2015	Zone 1	A Clay	-0.75	6.59E-09	-1.23	20.9	0.0	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-093S	11/15/2015	Zone 5	N Olive	0.00	4.04E-09	-0.75	14.2	7.0	0	0.00	36.0	36.0	1.70	0.50	Y	--
VMP-094S	11/14/2015	Zone 5	N Olive	0.00	2.54E-09	-0.48	4.0	3.6	0	0.00	918	918	11.2	0.50	Y	--
VMP-094VS	11/14/2015	Zone 5	A Clay	0.00	5.10E-09	-0.95	1.4	6.4	0	0.00	100	100	0.00	0.50	Y	--
VP-004S	11/15/2015	Zone 6	N Olive	0.00	1.47E-09	-0.28	0.8	8.4	73	70,300	110,000	39,700	47.5	0.50	**N**	--

Notes:
- VMP-021S, VMP-037S, VMP-037M, VMP-044VS, and VMP-044S along N Old St. Louis; VMP-062VS, VMP-062S on N Olive; and VMP-078M could not be screened because these locations have been paved over
- VMP-090VS, VMP-012M, VMP-012S and VMP-052VS could not be screened due to occlusion of the well screen
- VMP-070VS could not be screened due to low permeability or well probe blockage (deadhead conditions)
- MP-031B could not be screened due to being inaccessible from a car being parked over the well
- Expansion well plug indicated with a Y if replaced or N if not replaced (bold indicates wellhead reduction required)

TPH - total petroleum hydrocarbons
TVPH - total volatile petroleum hydrocarbons
PHC - petroleum hydrocarbons (equal to the FID TVPH concentration minus the FID methane concentration)
FID - flame ionization detector
PID - photoionization detector
-- - not applicable
in-H_2O - inches of water

APPENDIX C-1. EFFECTIVENESS MONITORING, FOURTH QUARTER 2015 VAPOR SCREENING RESULTS
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location	Date	Effectiveness Zone	Subsurface Layer	Static Pressure/ Vacuum	Estimated Soil Gas Permeability	Probe Specific Capacity	Oxygen	Carbon Dioxide	Lower Explosive Level	Methane	FID TVPH Concentration	FID PHC Concentration	PID Volatile Organic Chemicals	Well Diameter	Well Plug Replaced	Wellhead Reduction
				(in-H_2O)	(cm^2)	($cm^3/s{\cdot}in\ H_2O$)	(%)	(%)	(%)	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(inches)		(inches)

cm^2 - square centimeters
$cm^3/s{\cdot}in\ H_2O$ - cubic centimeters per second per inch of water
% - percent
ppmv - parts per million by volume

APPENDIX C-2. EFFECTIVENESS MONITORING, FIRST QUARTER 2016 VAPOR SCREENING RESULTS
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location	Date	Effectiveness Zone	Subsurface Layer	Static Pressure/ Vacuum ($in-H_2O$)	Estimated Soil Gas Permeability (cm^2)	Probe Specific Capacity ($cm^3/s \cdot in\ H_2O$)	Oxygen (%)	Carbon Dioxide (%)	Lower Explosive Level (%)	Methane (ppmv)	FID TVPH Concentration (ppmv)	FID PHC Concentration (ppmv)	PID Volatile Organic Chemicals (ppmv)	Well Diameter (inches)	Well Plug Replaced	Wellhead Reduction (inches)
HMW-053A	2/6/2016	Zone 4	N Olive	-0.42	4.71E-09	-12.89	19.9	1.7	0	0.00	0.00	0.00	1.50	2.00	N	--
HMW-054A	2/6/2016	Zone 4	N Olive	0.00	5.56E-09	-15.21	5.3	5.1	0	95.0	180	85.0	0.00	2.00	Y	0.50
MP-012S	2/6/2016	Zone 2	A Clay	0.00	1.08E-08	-27.70	20.8	0.0	0	0.00	0.00	0.00	0.00	1.00	**N**	--
MP-016S	2/6/2016	Zone 4	A Clay	0.00	8.28E-09	-18.86	19.9	2.2	0	0.00	0.00	0.00	0.00	1.00	Y	1.51
MP-022	2/2/2016	Zone 4	Backfill	0.48	2.01E-09	-0.38	20.7	0.0	0	0.00	0.00	0.00	0.00	0.13	N	--
MP-029A	2/5/2016	Zone 6	N Olive	-0.35	1.45E-08	-15.21	3.3	11.0	100	373,000	590,000	217,000	48.5	1.00	Y	--
MP-030A	2/5/2016	Zone 1	N Olive	0.00	3.98E-09	-20.88	12.5	9.7	0	0.000	0.000	0.000	0.000	1.00	Y	--
MP-031A	2/5/2016	Zone 1	A Clay	0.00	6.39E-09	-10.08	18.7	1.6	0	2.17	10.5	8.33	2.15	1.00	N	--
MP-031B	2/5/2016	Zone 1	N Olive	0.00	9.50E-09	-6.71	17.3	1.9	0	0.00	72.0	72.0	27.0	1.00	N	--
MP-032A	2/5/2016	Zone 1	N Olive	-0.05	9.50E-09	-9.99	2.2	14.5	46	12,430	39,050	26,620	152	1.00	Y	--
MP-033A	2/5/2016	Zone 2	A Clay	-0.62	1.01E-08	-15.87	20.4	0.6	0	14.1	72.5	58.4	17.9	1.00	N	--
MP-033B	2/5/2016	Zone 1	N Olive	-0.66	2.73E-09	-4.33	3.3	14.5	100	780,000	1,664,000	884,000	186	1.00	**N**	--
MP-034A	2/5/2016	Zone 1	N Olive	0.00	7.29E-09	-7.67	20.6	0.5	0	6.16	27.0	20.8	3.00	1.00	**N**	--
MP-035A	2/4/2016	Zone 1	A Clay	-2.08	1.43E-08	-22.44	20.9	0.0	0	0.00	0.00	0.00	0.00	1.00	Y	--
MP-035B	2/4/2016	Zone 1	N Olive	-2.06	7.78E-09	-16.34	20.9	0.0	0	0.00	1.75	1.75	1.50	1.00	**N**	--
MP-036A	2/4/2016	Zone 1	N Olive	0.00	1.78E-08	-27.93	20.5	0.6	0	0.00	2.50	2.50	0.75	1.00	**N**	--
MP-037A	2/5/2016	Zone 6	N Olive	-0.17	1.41E-09	-3.72	14.8	1.7	0	0.00	0.00	0.00	0.00	1.00	Y	--
MP-038A	2/5/2016	Zone 2	N Olive	0.00	5.51E-09	-11.57	0.5	8.1	41	14,280	28,720	14,440	92.0	1.00	Y	--
MP-039A	2/5/2016	Zone 2	N Olive	0.00	1.01E-08	-26.37	17.9	2.5	0	18.8	40.0	21.2	12.5	1.00	Y	--
MP-040A	2/5/2016	Zone 2	A Clay	-0.51	1.04E-08	-27.24	20.9	0.4	0	0.00	0.00	0.00	0.00	1.00	Y	--
MP-041A	2/5/2016	Zone 6	N Olive	-0.18	5.22E-09	-5.50	12.6	3.7	0	30.0	65.0	35.0	0.00	1.00	Y	--
MP-042A	2/5/2016	Zone 6	N Olive	-0.19	4.77E-09	-23.39	2.8	10.0	0	0.00	0.00	0.00	0.00	1.00	Y	--
MP-043A	2/5/2016	Zone 2	N Olive	0.00	3.94E-09	-4.17	4.8	7.8	11	4,310	6,270	1,960	17.5	1.00	**N**	--
MP-043B	2/5/2016	Zone 2	Main Silt	0.00	5.90E-09	-15.50	0.4	12.6	0	0.00	1,030	1,030	18.0	1.00	Y	--
MP-044A	2/6/2016	Zone 5	A Clay	-0.99	1.30E-08	-20.50	20.9	0.0	0	29.0	93.0	64.0	6.00	1.00	Y	0.35
MP-044B	2/6/2016	Zone 5	N Olive	-0.91	1.16E-08	-12.22	20.9	0.0	0	0.00	0.00	0.00	0.00	1.00	Y	--
MP-045A	2/6/2016	Zone 5	N Olive	-0.21	5.47E-09	-8.86	4.9	8.7	0	0.00	0.00	0.00	0.00	1.00	**N**	--
MP-046A	2/6/2016	Zone 5	N Olive	0.00	9.11E-09	-28.65	18.3	2.0	0	0.00	0.00	0.00	0.00	1.00	Y	0.65
MP-047A	2/5/2016	Zone 5	N Olive	-0.33	3.35E-09	-10.57	17.4	0.0	0	5.07	6.50	1.43	0.00	1.00	Y	--
MP-048A	2/5/2016	Zone 2	N Olive	0.00	5.33E-09	-27.93	13.4	5.4	0	0.00	155	155	2.30	1.00	N	--
MP-049A	2/5/2016	Zone 2	A Clay	-0.27	4.93E-09	-12.94	20.0	1.0	0	0.00	2.50	2.50	0.00	1.00	Y	0.48
MP-050A	2/6/2016	Zone 5	A Clay	0.11	2.35E-09	-7.65	4.8	8.8	100	210,000	212,000	2,000	80.0	1.00	Y	--
MP-051B	2/6/2016	Zone 5	N Olive	0.00	6.34E-09	-6.68	4.9	7.3	72	15,230	43,130	27,900	195	1.00	Y	--
MP-052A	2/6/2016	Zone 5	A Clay	0.00	7.31E-09	-15.35	19.7	1.5	0	0.00	0.00	0.00	0.00	1.00	Y	--
MP-053A	2/6/2016	Zone 5	A Clay	0.12	4.64E-09	-12.17	13.9	2.0	0	0.00	0.00	0.00	0.00	1.00	Y	0.66
MP-054A	2/6/2016	Zone 5	Area A, N Olive	-0.05	7.40E-09	-19.41	20.5	0.8	0	5.80	18.0	12.2	1.50	1.00	Y	--
MP-055A	2/6/2016	Zone 5	Area A, N Olive	0.00	3.29E-09	-17.28	10.9	3.6	100	30,600	54,550	23,950	115	1.00	Y	--
MP-056A	2/6/2016	Zone 5	Area A, N Olive	0.00	8.22E-09	-21.56	19.9	1.3	0	0.00	0.00	0.00	0.00	1.00	Y	0.88

APPENDIX C-2. EFFECTIVENESS MONITORING, FIRST QUARTER 2016 VAPOR SCREENING RESULTS
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location	Date	Effectiveness Zone	Subsurface Layer	Static Pressure/ Vacuum (in-H_2O)	Estimated Soil Gas Permeability (cm^2)	Probe Specific Capacity ($cm^3/s \cdot in\ H_2O$)	Oxygen (%)	Carbon Dioxide (%)	Lower Explosive Level (%)	Methane (ppmv)	FID TVPH Concentration (ppmv)	FID PHC Concentration (ppmv)	PID Volatile Organic Chemicals (ppmv)	Well Diameter (inches)	Well Plug Replaced	Wellhead Reduction (inches)
MP-057A	2/6/2016	Zone 4	Area A, N Olive	0.00	3.31E-09	-12.17	20.9	0.0	0	0.00	0.00	0.00	0.00	1.00	Y	--
MP-058A	2/6/2016	Zone 4	A Clay	0.00	1.76E-08	-36.96	19.3	1.8	0	0.00	0.00	0.00	0.00	1.00	N	--
MP-059A	2/6/2016	Zone 4	A Clay	0.00	4.23E-09	-4.81	20.5	0.2	0	0.00	54.0	54.0	23.0	1.00	Y	--
MP-059B	2/6/2016	Zone 4	Main Silt	0.10	1.20E-08	-37.80	17.7	2.0	0	0.00	0.00	0.00	0.00	1.00	Y	--
MP-060A	2/6/2016	Zone 4	A Clay	0.00	1.62E-08	-33.93	18.3	0.6	0	0.00	33.0	33.0	14.0	1.00	N	--
MP-064A	2/6/2016	Zone 4	A Clay	0.00	5.82E-09	-12.22	20.5	1.1	0	0.00	0.00	0.00	0.00	1.00	Y	0.50
MP-068	2/4/2016	Zone 1	N Olive	-0.09	3.87E-09	-13.47	17.0	3.5	0	0.00	0.00	0.00	0.00	1.00	Y	--
MP-078A	2/4/2016	Zone 1	A Clay	-0.65	6.21E-09	-6.55	20.9	0.2	0	0.00	0.00	0.00	0.00	1.00	Y	--
MP-078B	2/4/2016	Zone 1	N Olive	-0.60	2.21E-08	-23.23	20.8	0.0	0	0.00	0.00	0.00	0.00	1.00	Y	--
MP-079A	2/4/2016	Zone 1	N Olive	0.00	9.28E-09	-21.42	1.8	18.1	100	78,920	167,000	88,080	242	1.00	**N**	--
MP-080A	2/4/2016	Zone 1	N Olive	0.00	3.99E-09	-21.29	20.9	0.0	0	0.00	3.00	3.00	1.00	1.00	**N**	--
MP-083A	2/5/2016	Zone 1	N Olive	0.00	8.55E-09	-12.13	1.2	23.1	100	256,000	297,000	41,000	76.0	1.00	Y	--
MP-084A	2/5/2016	Zone 2	A Clay	-1.64	1.48E-08	-21.71	20.9	0.0	0	0.00	0.00	0.00	0.00	1.00	Y	--
MP-086A	2/5/2016	Zone 3	A Clay	-0.22	1.45E-08	-15.21	20.9	0.0	0	0.00	2.00	2.00	0.00	1.00	N	--
MP-087A	2/5/2016	Zone 2	A Clay	-0.26	1.67E-08	-8.81	20.9	0.0	0	0.00	0.00	0.00	0.00	1.00	Y	--
MP-088A	2/6/2016	Zone 4	A Clay	0.00	5.78E-09	-12.74	20.9	0.4	0	0.00	5.00	5.00	1.50	1.00	Y	0.33
MP-088B	2/6/2016	Zone 4	Main Silt	0.00	1.42E-08	-34.28	20.2	1.0	0	0.00	0.00	0.00	0.00	1.00	Y	0.54
MP-090A	2/2/2016	Zone 2	A Clay	-2.03	1.97E-08	-3.65	20.8	0.0	0	0.00	0.00	0.00	0.00	0.13	Y	--
MP-090B	2/5/2016	Zone 2	Main Silt	-5.53	3.86E-08	-20.24	20.9	0.0	0	0.00	0.00	0.00	0.00	1.00	Y	--
MP-091B	2/5/2016	Zone 2	Main Silt	-0.27	1.45E-08	-7.65	3.2	8.5	0	0.00	0.00	0.00	0.00	1.00	Y	--
MP-112M	2/7/2016	Zone 2	Main Silt	0.00	1.09E-08	-4.59	13.8	2.6	0	0.00	0.00	0.00	0.00	0.50	N	--
MP-112S	2/7/2016	Zone 2	N Olive	-0.15	3.65E-08	-15.35	19.3	0.8	0	0.00	0.00	0.00	0.00	0.50	N	--
MP-113M	2/7/2016	Zone 2	Main Silt	-1.42	4.03E-08	-16.93	20.9	0.0	0	0.00	0.00	0.00	0.00	0.50	N	--
MP-113S	2/7/2016	Zone 2	A Clay	-0.75	3.03E-08	-12.74	20.9	0.0	0	0.00	0.00	0.00	0.00	0.50	N	--
MP-114M	2/7/2016	Zone 2	Main Silt	-0.20	1.51E-08	-6.35	20.6	0.7	0	0.00	0.00	0.00	0.00	0.50	N	--
MP-114S	2/7/2016	Zone 2	A Clay	0.00	2.77E-08	-11.66	20.9	0.0	0	0.00	0.00	0.00	0.00	0.50	N	--
MP-115S	2/7/2016	Zone 2	N Olive	0.00	3.83E-08	-16.10	13.8	6.7	0	0.00	0.00	0.00	0.00	0.50	N	--
MP-116S	2/7/2016	Zone 6	N Olive	0.00	1.05E-09	-0.48	--	--	--	--	--	--	--	0.50	N	--
MP-118S	2/7/2016	Zone 6	N Olive	0.07	1.90E-09	-0.84	--	--	--	--	--	--	--	0.50	N	--
MP-121S	2/7/2016	Zone 6	N Olive	0.00	1.77E-08	-7.44	--	--	--	--	--	--	--	0.50	N	--
MP-122S	2/7/2016	Zone 6	N Olive	0.00	3.92E-09	-1.68	20.9	0.0	0	0.00	136	136	31.5	0.50	N	--
MP-123S	2/7/2016	Zone 6	N Olive	0.00	3.94E-09	-1.69	20.9	0.0	0	0.00	154	154	44.0	0.50	N	--
MP-124M	2/7/2016	Zone 6	N Olive	0.06	3.64E-09	-1.57	--	--	--	--	--	--	--	0.50	N	--
MP-124S	2/7/2016	Zone 6	N Olive	0.08	1.53E-09	-0.68	--	--	--	--	--	--	--	0.50	N	--
MP-125S	2/7/2016	Zone 6	N Olive	0.00	1.67E-08	-7.04	11.8	2.5	0	0.00	55.0	55.0	0.50	0.50	N	--
MP-126M	2/7/2016	Zone 6	N Olive	0.15	3.05E-09	-1.32	--	--	--	--	--	--	--	0.50	N	--
MP-126S	2/7/2016	Zone 6	N Olive	-0.08	2.41E-08	-10.14	19.6	0.4	0	0.00	19.0	19.0	4.00	0.50	N	--
MP-127D	2/7/2016	Zone 6	Rand	-0.12	3.07E-08	-12.89	2.7	15.7	100	478,000	583,000	105,000	185	0.50	N	--

APPENDIX C-2. EFFECTIVENESS MONITORING, FIRST QUARTER 2016 VAPOR SCREENING RESULTS
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location	Date	Effectiveness Zone	Subsurface Layer	Static Pressure/ Vacuum (in-H_2O)	Estimated Soil Gas Permeability (cm^2)	Probe Specific Capacity ($cm^3/s \cdot in\ H_2O$)	Oxygen (%)	Carbon Dioxide (%)	Lower Explosive Level (%)	Methane (ppmv)	FID TVPH Concentration (ppmv)	FID PHC Concentration (ppmv)	PID Volatile Organic Chemicals (ppmv)	Well Diameter (inches)	Well Plug Replaced	Wellhead Reduction (inches)
MP-127M	2/7/2016	Zone 6	N Olive	0.00	2.49E-08	-10.47	16.1	1.6	0	62.2	587	525	118	0.50	N	--
MP-127S	2/7/2016	Zone 6	N Olive	0.00	2.43E-08	-10.21	18.9	0.6	0	5.97	350	344	83.0	0.50	N	--
MP-128S	2/7/2016	Zone 5	N Olive	0.00	1.65E-08	-6.95	17.7	4.1	0	0.00	65.5	65.5	16.1	0.50	N	--
MP-129S	2/7/2016	Zone 5	N Olive	0.00	2.36E-08	-9.93	11.9	6.0	0	0.00	50.0	50.0	1.50	0.50	N	--
MP-130M	2/7/2016	Zone 4	N Olive	0.00	1.24E-08	-5.24	13.7	3.6	0	0.00	35.0	35.0	1.00	0.50	N	--
MP-130S	2/7/2016	Zone 4	N Olive	0.00	2.43E-08	-10.24	19.2	0.4	0	0.00	36.5	36.5	10.0	0.50	N	--
VMP-001S	2/3/2016	Zone 1	A Clay	0.12	3.96E-10	-0.08	12.1	5.2	0	460	520	60.0	0.50	0.50	Y	--
VMP-002D	2/3/2016	Zone 1	N Olive	0.00	6.35E-09	-1.18	20.6	0.8	0	0.00	4.00	4.00	2.00	0.50	Y	--
VMP-007	2/3/2016	Zone 1	N Olive	-0.78	7.27E-09	-1.35	20.8	0.7	0	0.00	1.00	1.00	0.50	0.50	Y	--
VMP-015M	2/2/2016	Zone 5	B Clay	-0.16	5.60E-09	-1.04	2.2	14.2	73	50,550	58,540	7,990	42.0	0.50	Y	--
VMP-015S	2/2/2016	Zone 5	N Olive	-0.05	1.39E-08	-2.58	4.1	9.0	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-015VS	2/2/2016	Zone 5	A Clay	0.62	3.19E-09	-0.60	11.5	1.0	5	1,560	25,120	23,560	306	0.50	Y	--
VMP-023M	2/3/2016	Zone 1	N Olive	-1.37	7.09E-09	-1.32	20.9	0.0	0	0.00	2.30	2.30	1.50	0.50	Y	--
VMP-023S	2/3/2016	Zone 1	N Olive	-1.62	4.05E-10	-0.08	20.7	1.2	0	0.00	3.50	3.50	2.25	0.50	Y	--
VMP-026M	2/2/2016	Zone 4	A Clay	-0.65	3.87E-09	-0.72	19.0	0.0	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-026S	2/2/2016	Zone 4	A Clay	-2.30	3.87E-09	-0.72	--	--	--	--	--	--	--	0.50	Y	--
VMP-027M	2/3/2016	Zone 1	B Clay	-2.61	1.54E-08	-2.87	20.9	0.0	0	0.00	2.00	2.00	0.75	0.50	Y	--
VMP-027S	2/3/2016	Zone 1	A Clay	-0.08	1.81E-09	-0.34	20.9	0.0	0	0.00	2.00	2.00	1.00	0.50	Y	--
VMP-036S	2/3/2016	Zone 5	B Clay	-0.27	3.85E-09	-0.72	3.4	7.6	9	4,080	4,680	600	3.66	0.50	Y	--
VMP-036VS	2/3/2016	Zone 5	A Clay	-0.22	2.36E-08	-4.38	18.7	2.2	0	0.00	193	193	91.5	0.50	Y	--
VMP-052S	2/3/2016	Zone 1	A Clay	-7.68	1.92E-09	-0.36	20.9	0.0	0	0.00	1.00	1.00	1.00	0.13	Y	--
VMP-053S	2/3/2016	Zone 1	N Olive	-8.42	6.19E-09	-1.15	13.9	10.1	0	0.00	22.5	22.5	0.00	0.13	Y	--
VMP-053VS	2/3/2016	Zone 1	A Clay	-8.74	8.70E-09	-1.62	18.8	3.5	0	0.00	9.50	9.50	2.50	0.13	Y	--
VMP-057VS	2/3/2016	Zone 1	A Clay	6.00	2.26E-09	-0.42	15.3	1.3	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-058S	2/3/2016	Zone 1	N Olive	-1.01	6.49E-09	-1.21	2.8	11.9	4	1,710	1,960	250	3.00	0.50	Y	--
VMP-058VS	2/3/2016	Zone 1	A Clay	-0.54	3.34E-09	-0.62	2.2	9.4	14	7,170	7,770	600	1.00	0.50	Y	--
VMP-064VS	2/3/2016	Zone 6	A Clay	-0.11	6.17E-09	-1.15	4.9	5.5	0	93.4	640	547	8.50	0.50	Y	--
VMP-065S	2/3/2016	Zone 5	N Olive	-0.16	2.52E-09	-0.47	5.8	4.8	0	480	610	130	1.00	0.50	Y	--
VMP-065VS	2/3/2016	Zone 5	A Clay	-0.14	3.61E-09	-0.67	6.8	1.4	4	885	2,470	1,585	30.0	0.50	Y	--
VMP-066M	2/4/2016	Zone 2	Main Silt	-0.68	7.48E-09	-1.39	10.8	9.3	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-066S	2/4/2016	Zone 2	N Olive	-0.13	9.65E-09	-1.79	15.3	7.6	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-066VS	2/4/2016	Zone 2	A Clay	-0.12	1.32E-08	-2.46	19.7	1.4	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-067S	2/4/2016	Zone 2	Main Silt	-0.13	6.44E-09	-1.20	20.6	0.9	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-067VS	2/4/2016	Zone 2	A Clay	0.00	1.38E-08	-2.56	20.9	0.0	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-068S	2/3/2016	Zone 5	Rand	-0.22	8.14E-09	-1.51	1.6	15.0	17	656	14,530	13,874	284	0.50	Y	--
VMP-068VS	2/3/2016	Zone 5	A Clay	-0.09	2.04E-08	-3.78	19.8	1.1	0	1.81	4.16	2.35	0.60	0.50	Y	--
VMP-069M	2/2/2016	Zone 5	Main Silt	-0.41	1.02E-08	-1.90	20.8	0.0	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-069VS	2/2/2016	Zone 5	A Clay	-0.05	1.99E-08	-3.70	20.7	0.0	0	0.00	0.00	0.00	0.00	0.50	Y	--

APPENDIX C-2. EFFECTIVENESS MONITORING, FIRST QUARTER 2016 VAPOR SCREENING RESULTS
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location	Date	Effectiveness Zone	Subsurface Layer	Static Pressure/ Vacuum ($in-H_2O$)	Estimated Soil Gas Permeability (cm^2)	Probe Specific Capacity ($cm^3/s \cdot in\ H_2O$)	Oxygen (%)	Carbon Dioxide (%)	Lower Explosive Level (%)	Methane (ppmv)	FID TVPH Concentration (ppmv)	FID PHC Concentration (ppmv)	PID Volatile Organic Chemicals (ppmv)	Well Diameter (inches)	Well Plug Replaced	Wellhead Reduction (inches)
VMP-070M	2/2/2016	Zone 5	Rand	0.00	8.53E-09	-1.59	2.1	5.7	100	71,680	1,000,000	928,320	731	0.50	Y	--
VMP-071S	2/2/2016	Zone 5	N Olive	-1.97	7.71E-09	-1.43	20.2	0.7	0	637	637	0.00	7.00	0.50	Y	--
VMP-071VS	2/2/2016	Zone 5	A Clay	-0.78	3.82E-08	-7.08	20.6	0.1	9	448	448	0.00	3.40	0.50	Y	--
VMP-073M	2/4/2016	Zone 3	Main Silt	-0.30	5.51E-09	-1.03	20.2	1.2	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-073S	2/4/2016	Zone 3	A Clay	-0.47	2.96E-09	-0.55	18.6	0.6	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-074M	2/2/2016	Zone 4	Main Silt	-1.75	8.45E-09	-1.57	19.8	1.0	0	0.00	5.26	5.26	3.41	0.50	Y	--
VMP-074VS	2/2/2016	Zone 4	A Clay	-0.10	1.54E-08	-2.87	20.9	0.0	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-075S	2/2/2016	Zone 5	N Olive	0.05	9.86E-09	-1.83	1.7	11.5	5	2,250	2,670	420	0.00	0.50	Y	--
VMP-075VS	2/2/2016	Zone 5	A Clay	0.00	2.06E-08	-3.82	6.1	2.7	0	22.5	27.0	4.50	0.00	0.50	Y	--
VMP-076S	2/2/2016	Zone 5	N Olive	-0.15	1.38E-08	-2.56	20.8	0.0	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-076VS	2/2/2016	Zone 5	A Clay	-0.11	1.00E-08	-1.86	20.4	0.3	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-080S	2/3/2016	Zone 4	A Clay, Main Silt	-0.33	3.51E-09	-0.66	6.4	0.4	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-080VS	2/3/2016	Zone 4	A Clay	-0.04	1.53E-08	-2.84	20.4	0.0	0	0.00	3.81	3.81	1.00	0.50	Y	--
VMP-081M	2/2/2016	Zone 4	Main Silt	-0.06	9.29E-09	-1.73	19.6	1.2	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-081S	2/2/2016	Zone 4	A Clay	-0.10	1.20E-08	-2.23	20.0	0.9	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-089S	2/4/2016	Zone 1	N Olive	0.00	6.95E-09	-1.29	19.8	1.0	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-089VS	2/4/2016	Zone 1	A Clay	0.00	1.30E-08	-2.41	20.9	0.0	0	0.00	1.00	1.00	0.00	0.50	Y	--
VMP-093S	2/4/2016	Zone 5	N Olive	0.00	4.27E-09	-0.80	17.6	3.1	0	0.00	0.00	0.00	0.00	0.50	Y	--
VMP-094S	2/2/2016	Zone 5	N Olive	0.54	3.78E-09	-0.71	2.2	4.8	0	300	770	470	16.0	0.50	Y	--
VMP-094VS	2/2/2016	Zone 5	A Clay	0.00	5.19E-09	-0.97	2.9	4.0	0	180	1,040	860	19.0	0.50	Y	--
VP-004S	2/3/2016	Zone 6	N Olive	0.00	2.99E-09	-0.56	6.3	5.6	100	105,000	105,000	0.00	31.0	0.50	**N**	--

Notes:
- VMP-021S, VMP-037M, VMP-037S, VMP-044S, and VMP-044VS along N Old St. Louis; VMP-062S, VMP-062VS on N Olive; and VMP-078M could not be screened because these locations have been paved over
- MP-085A, MP-117S, MP-120S, VMP-006S, VMP-012M, VMP-012S, VMP-052VS, VMP-064M, VMP-064S, and VMP-090VS could not be screened due to occlusion of the well screen
- VMP-070VS could not be screened due to low permeability or well probe blockage (deadhead conditions)
- Expansion well plug indicated with a Y if replaced or N if not replaced (bold indicates wellhead reduction required)

TPH - total petroleum hydrocarbons
TVPH - total volatile petroleum hydrocarbons
PHC - petroleum hydrocarbons (equal to the FID TVPH concentration minus the FID methane concentration)
FID - flame ionization detector
PID - photoionization detector
-- - not applicable

APPENDIX D

October 14, 2015

Todd Aseltyne
Trihydro Corporation
1252 Commerce Drive
Laramie, WY 82070
TEL: (513) 429-7470
FAX:

NELAP ACCREDITED TNI LABORATORY

RE: Soil Vapor System

WorkOrder: 15100377

Dear Todd Aseltyne:

TEKLAB, INC received 1 sample on 10/7/2015 11:20:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Marvin L. Darling II

Marvin L. Darling
Project Manager
(618)344-1004 ex 41
mdarling@teklabinc.com

Report Contents

http://www.teklabinc.com/

Client: Trihydro Corporation

Client Project: Soil Vapor System

Work Order: 15100377

Report Date: 14-Oct-15

This reporting package includes the following:

Abbr Definition

Abbr	Definition
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
DNI	Did not ignite
DUP	Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

# -	Unknown hydrocarbon	B -	Analyte detected in associated Method Blank
E -	Value above quantitation range	H -	Holding times exceeded
I -	Associated internal standard was outside method criteria	J -	Analyte detected below quantitation limits
M -	Manual Integration used to determine area response	ND -	Not Detected at the Reporting Limit
R -	RPD outside accepted recovery limits	S -	Spike Recovery outside recovery limits
T -	TIC(Tentatively identified compound)	X -	Value exceeds Maximum Contaminant Level

Case Narrative

http://www.teklabinc.com/

Client: Trihydro Corporation

Client Project: Soil Vapor System

Work Order: 15100377

Report Date: 14-Oct-15

Cooler Receipt Temp: 5.82 °C

Locations and Accreditations

	Collinsville	Springfield	Kansas City	Collinsville Air
Address	5445 Horseshoe Lake Road	3920 Pintail Dr	8421 Nieman Road	5445 Horseshoe Lake Road
	Collinsville, IL 62234-7425	Springfield, IL 62711-9415	Lenexa, KS 66214	Collinsville, IL 62234-7425
Phone	(618) 344-1004	(217) 698-1004	(913) 541-1998	(618) 344-1004
Fax	(618) 344-1005	(217) 698-1005	(913) 541-1998	(618) 344-1005
Email	jhriley@teklabinc.com	KKlostermann@teklabinc.com	dthompson@teklabinc.com	EHurley@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2016	Collinsville
Kansas	KDHE	E-10374	NELAP	11/30/2015	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2016	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2016	Collinsville
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2016	Collinsville
Arkansas	ADEQ	88-0966		3/14/2016	Collinsville
Illinois	IDPH	17584		5/31/2017	Collinsville
Kentucky	KDEP	98006		12/31/2015	Collinsville
Kentucky	UST	0073		1/31/2016	Collinsville
Missouri	MDNR	00930		5/31/2017	Collinsville
Oklahoma	ODEQ	9978		8/31/2016	Collinsville

Client: Trihydro Corporation **Work Order:** 15100377

Client Project: Soil Vapor System **Report Date:** 14-Oct-15

Lab ID: 15100377-001 **Client Sample ID:** Tank 3

Matrix: AQUEOUS **Collection Date:** 10/07/2015 7:15

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1020B								
Ignitability, Closed Cup	NELAP	60		**>200**	°F	1	10/08/2015 9:40	R210138
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Lead	NELAP	0.0150		**0.0173**	mg/L	1	10/08/2015 10:36	112971
SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1-Methylnaphthalene		0.00050		**ND**	mg/L	5	10/12/2015 11:34	112987
Acenaphthene	NELAP	0.00050		**ND**	mg/L	5	10/12/2015 11:34	112987
Acenaphthylene	NELAP	0.00050		**ND**	mg/L	5	10/12/2015 11:34	112987
Anthracene	NELAP	0.00050		**ND**	mg/L	5	10/12/2015 11:34	112987
Benzo(a)anthracene	NELAP	0.00050		**ND**	mg/L	5	10/12/2015 11:34	112987
Benzo(a)pyrene	NELAP	0.00050		**ND**	mg/L	5	10/12/2015 11:34	112987
Benzo(b)fluoranthene	NELAP	0.00050		**ND**	mg/L	5	10/12/2015 11:34	112987
Benzo(g,h,i)perylene	NELAP	0.00050		**ND**	mg/L	5	10/12/2015 11:34	112987
Benzo(k)fluoranthene	NELAP	0.00050		**ND**	mg/L	5	10/12/2015 11:34	112987
Chrysene	NELAP	0.00050		**ND**	mg/L	5	10/12/2015 11:34	112987
Dibenzo(a,h)anthracene	NELAP	0.00050		**ND**	mg/L	5	10/12/2015 11:34	112987
Fluoranthene	NELAP	0.00050		**ND**	mg/L	5	10/12/2015 11:34	112987
Fluorene	NELAP	0.00050		**ND**	mg/L	5	10/12/2015 11:34	112987
Indeno(1,2,3-cd)pyrene	NELAP	0.00050		**ND**	mg/L	5	10/12/2015 11:34	112987
Naphthalene	NELAP	0.00050		**ND**	mg/L	5	10/12/2015 11:34	112987
Phenanthrene	NELAP	0.00050		**ND**	mg/L	5	10/12/2015 11:34	112987
Pyrene	NELAP	0.00050		**0.00050**	mg/L	5	10/12/2015 11:34	112987
Surr: 2-Fluorobiphenyl		10-143		**57.0**	%REC	5	10/12/2015 11:34	112987
Surr: Nitrobenzene-d5		10-166		**61.0**	%REC	5	10/12/2015 11:34	112987
Surr: p-Terphenyl-d14		10-137		**65.0**	%REC	5	10/12/2015 11:34	112987
Elevated reporting limit due to sample extract composition.								
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
1,1,1-Trichloroethane	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
1,1,2,2-Tetrachloroethane	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
1,1,2-Trichloro-1,2,2-trifluoroethane		20.0		**ND**	µg/L	1	10/08/2015 12:19	113010
1,1,2-Trichloroethane	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
1,1-Dichloro-2-propanone		50.0		**ND**	µg/L	1	10/08/2015 12:19	113010
1,1-Dichloroethane	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
1,1-Dichloroethene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
1,1-Dichloropropene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
1,2,3-Trichlorobenzene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
1,2,3-Trichloropropane	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
1,2,3-Trimethylbenzene		5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
1,2,4-Trichlorobenzene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
1,2,4-Trimethylbenzene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
1,2-Dibromo-3-chloropropane	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
1,2-Dibromoethane	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
1,2-Dichlorobenzene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
1,2-Dichloroethane	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
1,2-Dichloropropane	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
1,3,5-Trimethylbenzene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
1,3-Dichlorobenzene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010

Teklab, Inc. Environmental Laboratory

Laboratory Results

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Client: Trihydro Corporation **Work Order:** 15100377
Client Project: Soil Vapor System **Report Date:** 14-Oct-15
Lab ID: 15100377-001 **Client Sample ID:** Tank 3
Matrix: AQUEOUS **Collection Date:** 10/07/2015 7:15

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,3-Dichloropropane	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
1,4-Dichlorobenzene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
1-Chlorobutane	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
2,2-Dichloropropane	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
2-Butanone	NELAP	25.0		**ND**	µg/L	1	10/08/2015 12:19	113010
2-Chloroethyl vinyl ether	NELAP	20.0		**ND**	µg/L	1	10/08/2015 12:19	113010
2-Chlorotoluene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
2-Hexanone	NELAP	25.0		**ND**	µg/L	1	10/08/2015 12:19	113010
2-Nitropropane	NELAP	50.0		**ND**	µg/L	1	10/08/2015 12:19	113010
4-Chlorotoluene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
4-Methyl-2-pentanone	NELAP	25.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Acetone	NELAP	25.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Acetonitrile	NELAP	50.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Acrolein	NELAP	100		**ND**	µg/L	1	10/08/2015 12:19	113010
Acrylonitrile	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Allyl chloride	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Benzene	NELAP	2.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Bromobenzene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Bromochloromethane	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Bromodichloromethane	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Bromoform	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Bromomethane	NELAP	10.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Carbon disulfide	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Carbon tetrachloride	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Chlorobenzene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Chloroethane	NELAP	10.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Chloroform	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Chloromethane	NELAP	10.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Chloroprene	NELAP	20.0		**ND**	µg/L	1	10/08/2015 12:19	113010
cis-1,2-Dichloroethene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
cis-1,3-Dichloropropene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
cis-1,4-Dichloro-2-butene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Cyclohexanone		50.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Dibromochloromethane	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Dibromomethane	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Dichlorodifluoromethane	NELAP	10.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Ethyl acetate	NELAP	10.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Ethyl ether	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Ethyl methacrylate	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Ethylbenzene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Hexachlorobutadiene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Hexachloroethane	NELAP	10.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Iodomethane	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Isopropylbenzene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
m,p-Xylenes	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Methacrylonitrile	NELAP	10.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Methyl Methacrylate	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010

Client: Trihydro Corporation **Work Order:** 15100377

Client Project: Soil Vapor System **Report Date:** 14-Oct-15

Lab ID: 15100377-001 **Client Sample ID:** Tank 3

Matrix: AQUEOUS **Collection Date:** 10/07/2015 7:15

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Methyl tert-butyl ether	NELAP	2.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Methylacrylate		10.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Methylene chloride	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Naphthalene	NELAP	10.0		**ND**	µg/L	1	10/08/2015 12:19	113010
n-Butyl acetate		25.0		**ND**	µg/L	1	10/08/2015 12:19	113010
n-Butylbenzene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
n-Heptane		20.0		**ND**	µg/L	1	10/08/2015 12:19	113010
n-Hexane		20.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Nitrobenzene	NELAP	50.0		**ND**	µg/L	1	10/08/2015 12:19	113010
n-Propylbenzene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
o-Xylene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Pentachloroethane	NELAP	20.0		**ND**	µg/L	1	10/08/2015 12:19	113010
p-Isopropyltoluene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Propionitrile	NELAP	50.0		**ND**	µg/L	1	10/08/2015 12:19	113010
sec-Butylbenzene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Styrene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
tert-Butylbenzene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Tetrachloroethene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Tetrahydrofuran	NELAP	20.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Toluene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
trans-1,2-Dichloroethene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
trans-1,3-Dichloropropene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
trans-1,4-Dichloro-2-butene	NELAP	10.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Trichloroethene	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Trichlorofluoromethane	NELAP	5.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Vinyl acetate	NELAP	10.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Vinyl chloride	NELAP	2.0		**ND**	µg/L	1	10/08/2015 12:19	113010
Surr: 1,2-Dichloroethane-d4		74.7-129		**93.4**	%REC	1	10/08/2015 12:19	113010
Surr: 4-Bromofluorobenzene		86-119		**93.1**	%REC	1	10/08/2015 12:19	113010
Surr: Dibromofluoromethane		81.7-123		**102.5**	%REC	1	10/08/2015 12:19	113010
Surr: Toluene-d8		84.3-114		**92.7**	%REC	1	10/08/2015 12:19	113010

Quality Control Results

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Client: Trihydro Corporation
Client Project: Soil Vapor System
Work Order: 15100377
Report Date: 14-Oct-15

SW-846 1020B

Batch R210138 **SampType:** LCS Units °F
SampID: LCS-R210138

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ignitability, Closed Cup	60		**81**	81.00	0	100.0	97	103	10/08/2015

Batch R210138 **SampType:** DUP Units °F RPD Limit **5**
SampID: 15100377-001BDUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ignitability, Closed Cup	60		**>200**				0	0.00	10/08/2015

SW-846 3005A, 6010B, METALS BY ICP (TOTAL)

Batch 112971 **SampType:** MBLK Units **mg/L**
SampID: MBLK-112971

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	0.0150		**< 0.0150**	0.01500	0	0	-100	100	10/08/2015

Batch 112971 **SampType:** LCS Units **mg/L**
SampID: LCS-112971

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	0.0150		**0.492**	0.5000	0	98.4	85	115	10/08/2015

SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 112987 **SampType:** MBLK Units **mg/L**
SampID: MBLK-112987

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1-Methylnaphthalene	0.00010		**ND**						10/09/2015
Acenaphthene	0.00010		**ND**						10/09/2015
Acenaphthylene	0.00010		**ND**						10/09/2015
Anthracene	0.00010		**ND**						10/09/2015
Benzo(a)anthracene	0.00010		**ND**						10/09/2015
Benzo(a)pyrene	0.00010		**ND**						10/09/2015
Benzo(b)fluoranthene	0.00010		**ND**						10/09/2015
Benzo(g,h,i)perylene	0.00010		**ND**						10/09/2015
Benzo(k)fluoranthene	0.00010		**ND**						10/09/2015
Chrysene	0.00010		**ND**						10/09/2015
Dibenzo(a,h)anthracene	0.00010		**ND**						10/09/2015
Fluoranthene	0.00010		**ND**						10/09/2015
Fluorene	0.00010		**ND**						10/09/2015
Indeno(1,2,3-cd)pyrene	0.00010		**ND**						10/09/2015
Naphthalene	0.00010		**ND**						10/09/2015
Phenanthrene	0.00010		**ND**						10/09/2015
Pyrene	0.00010		**ND**						10/09/2015
Surr: 2-Fluorobiphenyl			**0.00377**	).00500(		75.4	44.4	89.6	10/09/2015
Surr: Nitrobenzene-d5			**0.00354**	).00500(		70.8	40.9	81.4	10/09/2015
Surr: p-Terphenyl-d14			**0.00400**	).00500(		80.0	54.3	104	10/09/2015

Client: Trihydro Corporation **Work Order:** 15100377

Client Project: Soil Vapor System **Report Date:** 14-Oct-15

SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 112987 **SampType:** LCS Units **mg/L**

SampID: LCS-112987

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1-Methylnaphthalene	0.00010		**0.00351**	).00500(	0	70.2	44.3	94.9	10/09/2015
Acenaphthene	0.00010		**0.00370**	).00500(	0	74.0	50.1	94.9	10/09/2015
Acenaphthylene	0.00010		**0.00386**	).00500(	0	77.2	50.6	96.9	10/09/2015
Anthracene	0.00010		**0.00382**	).00500(	0	76.4	53.5	94.3	10/09/2015
Benzo(a)anthracene	0.00010		**0.00379**	).00500(	0	75.8	48.3	104	10/09/2015
Benzo(a)pyrene	0.00010		**0.00435**	).00500(	0	87.0	52	103	10/09/2015
Benzo(b)fluoranthene	0.00010		**0.00415**	).00500(	0	83.0	55.3	98.4	10/09/2015
Benzo(g,h,i)perylene	0.00010		**0.00316**	).00500(	0	63.2	51.1	104	10/09/2015
Benzo(k)fluoranthene	0.00010		**0.00434**	).00500(	0	86.8	56.1	99.3	10/09/2015
Chrysene	0.00010		**0.00352**	).00500(	0	70.4	54.3	99.4	10/09/2015
Dibenzo(a,h)anthracene	0.00010		**0.00346**	).00500(	0	69.2	53.7	104	10/09/2015
Fluoranthene	0.00010		**0.00377**	).00500(	0	75.4	56.8	96.9	10/09/2015
Fluorene	0.00010		**0.00397**	).00500(	0	79.4	53.6	97	10/09/2015
Indeno(1,2,3-cd)pyrene	0.00010		**0.00343**	).00500(	0	68.6	53.4	103	10/09/2015
Naphthalene	0.00010		**0.00350**	).00500(	0	70.0	43.4	95	10/09/2015
Phenanthrene	0.00010		**0.00376**	).00500(	0	75.2	53.8	94.2	10/09/2015
Pyrene	0.00010		**0.00377**	).00500(	0	75.4	56.1	97.1	10/09/2015
Surr: 2-Fluorobiphenyl			**0.00327**	).00500(		65.4	44.4	89.6	10/09/2015
Surr: Nitrobenzene-d5			**0.00372**	).00500(		74.4	40.9	81.4	10/09/2015
Surr: p-Terphenyl-d14			**0.00373**	).00500(		74.6	54.3	104	10/09/2015

Batch 112987 **SampType:** LCSD Units **mg/L** RPD Limit **40**

SampID: LCSD-112987

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1-Methylnaphthalene	0.00010		**0.00392**	).00500(	0	78.4	0.003510	11.04	10/09/2015
Acenaphthene	0.00010		**0.00377**	).00500(	0	75.4	0.003700	1.87	10/09/2015
Acenaphthylene	0.00010		**0.00381**	).00500(	0	76.2	0.003860	1.30	10/09/2015
Anthracene	0.00010		**0.00394**	).00500(	0	78.8	0.003820	3.09	10/09/2015
Benzo(a)anthracene	0.00010		**0.00378**	).00500(	0	75.6	0.003790	0.26	10/09/2015
Benzo(a)pyrene	0.00010		**0.00435**	).00500(	0	87.0	0.004350	0.00	10/09/2015
Benzo(b)fluoranthene	0.00010		**0.00424**	).00500(	0	84.8	0.004150	2.15	10/09/2015
Benzo(g,h,i)perylene	0.00010		**0.00314**	).00500(	0	62.8	0.003160	0.63	10/09/2015
Benzo(k)fluoranthene	0.00010		**0.00429**	).00500(	0	85.8	0.004340	1.16	10/09/2015
Chrysene	0.00010		**0.00366**	).00500(	0	73.2	0.003520	3.90	10/09/2015
Dibenzo(a,h)anthracene	0.00010		**0.00347**	).00500(	0	69.4	0.003460	0.29	10/09/2015
Fluoranthene	0.00010		**0.00329**	).00500(	0	65.8	0.003770	13.60	10/09/2015
Fluorene	0.00010		**0.00383**	).00500(	0	76.6	0.003970	3.59	10/09/2015
Indeno(1,2,3-cd)pyrene	0.00010		**0.00344**	).00500(	0	68.8	0.003430	0.29	10/09/2015
Naphthalene	0.00010		**0.00364**	).00500(	0	72.8	0.003500	3.92	10/09/2015
Phenanthrene	0.00010		**0.00386**	).00500(	0	77.2	0.003760	2.62	10/09/2015
Pyrene	0.00010		**0.00328**	).00500(	0	65.6	0.003770	13.90	10/09/2015
Surr: 2-Fluorobiphenyl			**0.00331**	).00500(		66.2			10/09/2015
Surr: Nitrobenzene-d5			**0.00359**	).00500(		71.8			10/09/2015
Surr: p-Terphenyl-d14			**0.00320**	).00500(		64.0			10/09/2015

Client: Trihydro Corporation | **Work Order:** 15100377

Client Project: Soil Vapor System | **Report Date:** 14-Oct-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 113010 **SampType:** MBLK Units µg/L

SampID: MBLK-R151008-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1,2-Tetrachloroethane	5.0		ND						10/08/2015
1,1,1-Trichloroethane	5.0		ND						10/08/2015
1,1,2,2-Tetrachloroethane	5.0		ND						10/08/2015
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0		ND						10/08/2015
1,1,2-Trichloroethane	5.0		ND						10/08/2015
1,1-Dichloro-2-propanone	50.0		ND						10/08/2015
1,1-Dichloroethane	5.0		ND						10/08/2015
1,1-Dichloroethene	5.0		ND						10/08/2015
1,1-Dichloropropene	5.0		ND						10/08/2015
1,2,3-Trichlorobenzene	5.0		ND						10/08/2015
1,2,3-Trichloropropane	5.0		ND						10/08/2015
1,2,3-Trimethylbenzene	5.0		ND						10/08/2015
1,2,4-Trichlorobenzene	5.0		ND						10/08/2015
1,2,4-Trimethylbenzene	5.0		ND						10/08/2015
1,2-Dibromo-3-chloropropane	5.0		ND						10/08/2015
1,2-Dibromoethane	5.0		ND						10/08/2015
1,2-Dichlorobenzene	5.0		ND						10/08/2015
1,2-Dichloroethane	5.0		ND						10/08/2015
1,2-Dichloropropane	5.0		ND						10/08/2015
1,3,5-Trimethylbenzene	5.0		ND						10/08/2015
1,3-Dichlorobenzene	5.0		ND						10/08/2015
1,3-Dichloropropane	5.0		ND						10/08/2015
1,4-Dichlorobenzene	5.0		ND						10/08/2015
1-Chlorobutane	5.0		ND						10/08/2015
2,2-Dichloropropane	5.0		ND						10/08/2015
2-Butanone	25.0		ND						10/08/2015
2-Chloroethyl vinyl ether	20.0		ND						10/08/2015
2-Chlorotoluene	5.0		ND						10/08/2015
2-Hexanone	25.0		ND						10/08/2015
2-Nitropropane	50.0		ND						10/08/2015
4-Chlorotoluene	5.0		ND						10/08/2015
4-Methyl-2-pentanone	25.0		ND						10/08/2015
Acetone	25.0		ND						10/08/2015
Acetonitrile	50.0		ND						10/08/2015
Acrolein	100		ND						10/08/2015
Acrylonitrile	5.0		ND						10/08/2015
Allyl chloride	5.0		ND						10/08/2015
Benzene	2.0		ND						10/08/2015
Bromobenzene	5.0		ND						10/08/2015
Bromochloromethane	5.0		ND						10/08/2015
Bromodichloromethane	5.0		ND						10/08/2015
Bromoform	5.0		ND						10/08/2015
Bromomethane	10.0		ND						10/08/2015
Carbon disulfide	5.0		ND						10/08/2015
Carbon tetrachloride	5.0		ND						10/08/2015
Chlorobenzene	5.0		ND						10/08/2015
Chloroethane	10.0		ND						10/08/2015

Client: Trihydro Corporation

Client Project: Soil Vapor System

Work Order: 15100377

Report Date: 14-Oct-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 113010 **SampType:** MBLK Units **µg/L**

SampID: MBLK-R151008-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloroform	5.0		ND						10/08/2015
Chloromethane	10.0		ND						10/08/2015
Chloroprene	20.0		ND						10/08/2015
cis-1,2-Dichloroethene	5.0		ND						10/08/2015
cis-1,3-Dichloropropene	5.0		ND						10/08/2015
cis-1,4-Dichloro-2-butene	5.0		ND						10/08/2015
Cyclohexanone	50.0		ND						10/08/2015
Dibromochloromethane	5.0		ND						10/08/2015
Dibromomethane	5.0		ND						10/08/2015
Dichlorodifluoromethane	10.0		ND						10/08/2015
Ethyl acetate	10.0		ND						10/08/2015
Ethyl ether	5.0		ND						10/08/2015
Ethyl methacrylate	5.0		ND						10/08/2015
Ethylbenzene	5.0		ND						10/08/2015
Hexachlorobutadiene	5.0		ND						10/08/2015
Hexachloroethane	10.0		ND						10/08/2015
Iodomethane	5.0		ND						10/08/2015
Isopropylbenzene	5.0		ND						10/08/2015
m,p-Xylenes	5.0		ND						10/08/2015
Methacrylonitrile	10.0		ND						10/08/2015
Methyl Methacrylate	5.0		ND						10/08/2015
Methyl tert-butyl ether	2.0		ND						10/08/2015
Methylacrylate	10.0		ND						10/08/2015
Methylene chloride	5.0		ND						10/08/2015
Naphthalene	10.0		ND						10/08/2015
n-Butyl acetate	25.0		ND						10/08/2015
n-Butylbenzene	5.0		ND						10/08/2015
n-Heptane	20.0		ND						10/08/2015
n-Hexane	20.0		ND						10/08/2015
Nitrobenzene	50.0		ND						10/08/2015
n-Propylbenzene	5.0		ND						10/08/2015
o-Xylene	5.0		ND						10/08/2015
Pentachloroethane	20.0		ND						10/08/2015
p-Isopropyltoluene	5.0		ND						10/08/2015
Propionitrile	50.0		ND						10/08/2015
sec-Butylbenzene	5.0		ND						10/08/2015
Styrene	5.0		ND						10/08/2015
tert-Butylbenzene	5.0		ND						10/08/2015
Tetrachloroethene	5.0		ND						10/08/2015
Tetrahydrofuran	20.0		ND						10/08/2015
Toluene	5.0		ND						10/08/2015
trans-1,2-Dichloroethene	5.0		ND						10/08/2015
trans-1,3-Dichloropropene	5.0		ND						10/08/2015
trans-1,4-Dichloro-2-butene	10.0		ND						10/08/2015
Trichloroethene	5.0		ND						10/08/2015
Trichlorofluoromethane	5.0		ND						10/08/2015
Vinyl acetate	10.0		ND						10/08/2015

Client: Trihydro Corporation

Client Project: Soil Vapor System

Work Order: 15100377

Report Date: 14-Oct-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 113010 **SampType:** MBLK Units **µg/L**

SampID: MBLK-R151008-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Vinyl chloride	2.0		**ND**						10/08/2015
Surr: 1,2-Dichloroethane-d4			**48.2**	50.00		96.5	74.7	129	10/08/2015
Surr: 4-Bromofluorobenzene			**46.8**	50.00		93.6	86	119	10/08/2015
Surr: Dibromofluoromethane			**52.3**	50.00		104.7	81.7	123	10/08/2015
Surr: Toluene-d8			**46.3**	50.00		92.7	84.3	114	10/08/2015

Teklab, Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Trihydro Corporation
Client Project: Soil Vapor System

Work Order: 15100377
Report Date: 14-Oct-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 113010 **SampType:** LCSD Units **µg/L** RPD Limit **40**

SampID: LCSD-R151008-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1,1,2-Tetrachloroethane	5.0		**50.9**	50.00	0	101.9	49.62	2.61	10/08/2015
1,1,1-Trichloroethane	5.0		**53.7**	50.00	0	107.4	51.03	5.14	10/08/2015
1,1,2,2-Tetrachloroethane	5.0		**48.2**	50.00	0	96.4	46.39	3.87	10/08/2015
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0		**52.0**	50.00	0	104.1	49.41	5.17	10/08/2015
1,1,2-Trichloroethane	5.0		**50.1**	50.00	0	100.2	48.76	2.73	10/08/2015
1,1-Dichloro-2-propanone	50.0		**117**	125.0	0	93.2	106.5	9.00	10/08/2015
1,1-Dichloroethane	5.0		**51.8**	50.00	0	103.6	49.25	5.07	10/08/2015
1,1-Dichloroethene	5.0		**50.4**	50.00	0	100.8	47.85	5.21	10/08/2015
1,1-Dichloropropene	5.0		**53.9**	50.00	0	107.8	51.78	4.01	10/08/2015
1,2,3-Trichlorobenzene	5.0		**48.6**	50.00	0	97.2	47.07	3.22	10/08/2015
1,2,3-Trichloropropane	5.0		**47.7**	50.00	0	95.4	46.01	3.63	10/08/2015
1,2,3-Trimethylbenzene	5.0		**46.4**	50.00	0	92.8	44.52	4.14	10/08/2015
1,2,4-Trichlorobenzene	5.0		**46.4**	50.00	0	92.8	44.47	4.29	10/08/2015
1,2,4-Trimethylbenzene	5.0		**46.6**	50.00	0	93.2	44.41	4.86	10/08/2015
1,2-Dibromo-3-chloropropane	5.0		**45.9**	50.00	0	91.8	42.88	6.80	10/08/2015
1,2-Dibromoethane	5.0		**50.1**	50.00	0	100.2	49.00	2.18	10/08/2015
1,2-Dichlorobenzene	5.0		**46.4**	50.00	0	92.8	45.29	2.44	10/08/2015
1,2-Dichloroethane	5.0		**53.9**	50.00	0	107.8	51.56	4.42	10/08/2015
1,2-Dichloropropane	5.0		**54.7**	50.00	0	109.4	52.59	3.90	10/08/2015
1,3,5-Trimethylbenzene	5.0		**46.4**	50.00	0	92.9	44.13	5.08	10/08/2015
1,3-Dichlorobenzene	5.0		**47.5**	50.00	0	95.0	45.48	4.37	10/08/2015
1,3-Dichloropropane	5.0		**49.0**	50.00	0	98.0	47.58	2.92	10/08/2015
1,4-Dichlorobenzene	5.0		**46.8**	50.00	0	93.6	45.13	3.61	10/08/2015
1-Chlorobutane	5.0		**52.3**	50.00	0	104.6	49.54	5.46	10/08/2015
2,2-Dichloropropane	5.0		**50.8**	50.00	0	101.7	48.88	3.93	10/08/2015
2-Butanone	25.0		**131**	125.0	0	104.6	122.6	6.37	10/08/2015
2-Chloroethyl vinyl ether	20.0		**52.1**	50.00	0	104.2	50.19	3.70	10/08/2015
2-Chlorotoluene	5.0		**45.7**	50.00	0	91.5	43.54	4.91	10/08/2015
2-Hexanone	25.0		**115**	125.0	0	92.3	110.6	4.24	10/08/2015
2-Nitropropane	50.0		**553**	500.0	0	110.5	517.0	6.67	10/08/2015
4-Chlorotoluene	5.0		**46.4**	50.00	0	92.8	44.06	5.13	10/08/2015
4-Methyl-2-pentanone	25.0		**124**	125.0	0	99.4	120.5	3.01	10/08/2015
Acetone	25.0		**123**	125.0	0	98.7	113.0	8.74	10/08/2015
Acetonitrile	50.0		**555**	500.0	0	111.1	516.2	7.31	10/08/2015
Acrolein	100		**478**	500.0	0	95.6	450.3	5.95	10/08/2015
Acrylonitrile	5.0		**56.8**	50.00	0	113.6	53.93	5.22	10/08/2015
Allyl chloride	5.0		**53.1**	50.00	0	106.1	50.72	4.51	10/08/2015
Benzene	2.0		**55.0**	50.00	0	110.0	52.22	5.20	10/08/2015
Bromobenzene	5.0		**45.2**	50.00	0	90.5	36.77	20.68	10/08/2015
Bromochloromethane	5.0		**52.3**	50.00	0	104.6	51.28	2.01	10/08/2015
Bromodichloromethane	5.0		**56.5**	50.00	0	113.0	53.50	5.44	10/08/2015
Bromoform	5.0		**54.6**	50.00	0	109.2	53.39	2.28	10/08/2015
Bromomethane	10.0		**72.2**	50.00	0	144.5	66.88	7.71	10/08/2015
Carbon disulfide	5.0		**50.6**	50.00	0	101.2	47.89	5.48	10/08/2015
Carbon tetrachloride	5.0		**53.5**	50.00	0	107.0	50.45	5.91	10/08/2015
Chlorobenzene	5.0		**49.5**	50.00	0	99.1	47.84	3.49	10/08/2015
Chloroethane	10.0		**58.0**	50.00	0	116.0	56.75	2.20	10/08/2015

Client: Trihydro Corporation

Client Project: Soil Vapor System

Work Order: 15100377

Report Date: 14-Oct-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 113010 **SampType:** LCSD Units **µg/L** RPD Limit **40**

SampID: LCSD-R151008-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloroform	5.0		**53.4**	50.00	0	106.8	51.36	3.91	10/08/2015
Chloromethane	10.0		**54.1**	50.00	0	108.2	53.38	1.38	10/08/2015
Chloroprene	20.0		**48.6**	50.00	0	97.1	45.98	5.48	10/08/2015
cis-1,2-Dichloroethene	5.0		**52.4**	50.00	0	104.9	50.28	4.21	10/08/2015
cis-1,3-Dichloropropene	5.0		**59.4**	50.00	0	118.8	56.43	5.16	10/08/2015
cis-1,4-Dichloro-2-butene	5.0		**48.2**	50.00	0	96.5	41.72	14.52	10/08/2015
Cyclohexanone	50.0		**493**	500.0	0	98.5	451.1	8.81	10/08/2015
Dibromochloromethane	5.0		**54.1**	50.00	0	108.2	52.15	3.69	10/08/2015
Dibromomethane	5.0		**57.1**	50.00	0	114.2	55.07	3.64	10/08/2015
Dichlorodifluoromethane	10.0		**54.6**	50.00	0	109.1	52.55	3.75	10/08/2015
Ethyl acetate	10.0		**57.6**	50.00	0	115.2	53.07	8.15	10/08/2015
Ethyl ether	5.0		**51.6**	50.00	0	103.2	49.91	3.29	10/08/2015
Ethyl methacrylate	5.0		**49.1**	50.00	0	98.2	47.81	2.66	10/08/2015
Ethylbenzene	5.0		**49.1**	50.00	0	98.1	47.38	3.48	10/08/2015
Hexachlorobutadiene	5.0		**45.9**	50.00	0	91.8	45.72	0.39	10/08/2015
Hexachloroethane	10.0		**44.8**	50.00	0	89.6	41.96	6.52	10/08/2015
Iodomethane	5.0		**57.8**	50.00	0	115.7	57.04	1.39	10/08/2015
Isopropylbenzene	5.0		**49.9**	50.00	0	99.9	48.20	3.55	10/08/2015
m,p-Xylenes	5.0		**98.3**	100.0	0	98.3	94.59	3.87	10/08/2015
Methacrylonitrile	10.0		**56.4**	50.00	0	112.9	53.94	4.51	10/08/2015
Methyl Methacrylate	5.0		**53.7**	50.00	0	107.4	51.11	4.91	10/08/2015
Methyl tert-butyl ether	2.0		**55.7**	50.00	0	111.4	53.88	3.36	10/08/2015
Methylacrylate	10.0		**58.4**	50.00	0	116.9	56.68	3.07	10/08/2015
Methylene chloride	5.0		**50.1**	50.00	0	100.3	47.94	4.47	10/08/2015
Naphthalene	10.0		**48.0**	50.00	0	96.0	45.93	4.37	10/08/2015
n-Butyl acetate	25.0		**46.5**	50.00	0	93.0	45.07	3.10	10/08/2015
n-Butylbenzene	5.0		**44.8**	50.00	0	89.6	42.66	4.92	10/08/2015
n-Heptane	20.0		**51.6**	50.00	0	103.3	49.60	4.03	10/08/2015
n-Hexane	20.0		**48.8**	50.00	0	97.5	46.52	4.68	10/08/2015
Nitrobenzene	50.0		**454**	500.0	0	90.7	399.6	12.67	10/08/2015
n-Propylbenzene	5.0		**46.1**	50.00	0	92.2	43.66	5.44	10/08/2015
o-Xylene	5.0		**48.4**	50.00	0	96.8	46.68	3.64	10/08/2015
Pentachloroethane	20.0		**46.8**	50.00	0	93.7	44.80	4.43	10/08/2015
p-Isopropyltoluene	5.0		**47.4**	50.00	0	94.7	44.68	5.80	10/08/2015
Propionitrile	50.0		**601**	500.0	0	120.2	561.2	6.88	10/08/2015
sec-Butylbenzene	5.0		**46.6**	50.00	0	93.2	44.57	4.45	10/08/2015
Styrene	5.0		**50.6**	50.00	0	101.1	48.88	3.38	10/08/2015
tert-Butylbenzene	5.0		**44.3**	50.00	0	88.6	41.95	5.40	10/08/2015
Tetrachloroethene	5.0		**47.7**	50.00	0	95.4	45.94	3.72	10/08/2015
Tetrahydrofuran	20.0		**52.8**	50.00	0	105.6	49.74	5.95	10/08/2015
Toluene	5.0		**48.5**	50.00	0	97.0	47.08	3.01	10/08/2015
trans-1,2-Dichloroethene	5.0		**52.2**	50.00	0	104.5	50.22	3.92	10/08/2015
trans-1,3-Dichloropropene	5.0		**49.1**	50.00	0	98.2	47.15	4.07	10/08/2015
trans-1,4-Dichloro-2-butene	10.0		**41.6**	50.00	0	83.1	37.39	10.56	10/08/2015
Trichloroethene	5.0		**54.0**	50.00	0	107.9	52.30	3.14	10/08/2015
Trichlorofluoromethane	5.0		**48.3**	50.00	0	96.7	45.83	5.33	10/08/2015
Vinyl acetate	10.0		**53.0**	50.00	0	106.0	49.28	7.26	10/08/2015

Client: Trihydro Corporation

Client Project: Soil Vapor System

Work Order: 15100377

Report Date: 14-Oct-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 113010 **SampType:** LCSD Units **µg/L** RPD Limit **40**

SampID: LCSD-R151008-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Vinyl chloride	2.0		**53.9**	50.00	0	107.7	52.64	2.29	10/08/2015
Surr: 1,2-Dichloroethane-d4			**48.2**	50.00		96.5			10/08/2015
Surr: 4-Bromofluorobenzene			**48.2**	50.00		96.4			10/08/2015
Surr: Dibromofluoromethane			**52.0**	50.00		104.0			10/08/2015
Surr: Toluene-d8			**46.6**	50.00		93.3			10/08/2015

Teklab, Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Trihydro Corporation

Client Project: Soil Vapor System

Work Order: 15100377

Report Date: 14-Oct-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 113010 **SampType:** LCS Units **µg/L**

SampID: LCS-R151008-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1,2-Tetrachloroethane	5.0		**49.6**	50.00	0	99.2	81.9	115	10/08/2015
1,1,1-Trichloroethane	5.0		**51.0**	50.00	0	102.1	79.4	124	10/08/2015
1,1,2,2-Tetrachloroethane	5.0		**46.4**	50.00	0	92.8	74.7	116	10/08/2015
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0		**49.4**	50.00	0	98.8	72.9	121	10/08/2015
1,1,2-Trichloroethane	5.0		**48.8**	50.00	0	97.5	80.8	111	10/08/2015
1,1-Dichloro-2-propanone	50.0		**106**	125.0	0	85.2	66.3	130	10/08/2015
1,1-Dichloroethane	5.0		**49.2**	50.00	0	98.5	79.4	114	10/08/2015
1,1-Dichloroethene	5.0		**47.8**	50.00	0	95.7	74.1	117	10/08/2015
1,1-Dichloropropene	5.0		**51.8**	50.00	0	103.6	81.7	116	10/08/2015
1,2,3-Trichlorobenzene	5.0		**47.1**	50.00	0	94.1	79.7	118	10/08/2015
1,2,3-Trichloropropane	5.0		**46.0**	50.00	0	92.0	77.3	112	10/08/2015
1,2,3-Trimethylbenzene	5.0		**44.5**	50.00	0	89.0	79.9	119	10/08/2015
1,2,4-Trichlorobenzene	5.0		**44.5**	50.00	0	88.9	79.3	118	10/08/2015
1,2,4-Trimethylbenzene	5.0		**44.4**	50.00	0	88.8	78.7	115	10/08/2015
1,2-Dibromo-3-chloropropane	5.0		**42.9**	50.00	0	85.8	76	122	10/08/2015
1,2-Dibromoethane	5.0		**49.0**	50.00	0	98.0	80.8	114	10/08/2015
1,2-Dichlorobenzene	5.0		**45.3**	50.00	0	90.6	78.3	112	10/08/2015
1,2-Dichloroethane	5.0		**51.6**	50.00	0	103.1	70.6	118	10/08/2015
1,2-Dichloropropane	5.0		**52.6**	50.00	0	105.2	79.6	113	10/08/2015
1,3,5-Trimethylbenzene	5.0		**44.1**	50.00	0	88.3	77.5	115	10/08/2015
1,3-Dichlorobenzene	5.0		**45.5**	50.00	0	91.0	78.6	117	10/08/2015
1,3-Dichloropropane	5.0		**47.6**	50.00	0	95.2	78.8	112	10/08/2015
1,4-Dichlorobenzene	5.0		**45.1**	50.00	0	90.3	77.8	114	10/08/2015
1-Chlorobutane	5.0		**49.5**	50.00	0	99.1	78.6	115	10/08/2015
2,2-Dichloropropane	5.0		**48.9**	50.00	0	97.8	74.9	130	10/08/2015
2-Butanone	25.0		**123**	125.0	0	98.1	70.7	136	10/08/2015
2-Chloroethyl vinyl ether	20.0		**50.2**	50.00	0	100.4	52.5	145	10/08/2015
2-Chlorotoluene	5.0		**43.5**	50.00	0	87.1	77.4	114	10/08/2015
2-Hexanone	25.0		**111**	125.0	0	88.5	73.3	125	10/08/2015
2-Nitropropane	50.0		**517**	500.0	0	103.4	67.3	139	10/08/2015
4-Chlorotoluene	5.0		**44.1**	50.00	0	88.1	78.3	115	10/08/2015
4-Methyl-2-pentanone	25.0		**121**	125.0	0	96.4	76.3	122	10/08/2015
Acetone	25.0		**113**	125.0	0	90.4	56.4	147	10/08/2015
Acetonitrile	50.0		**516**	500.0	0	103.2	59.3	129	10/08/2015
Acrolein	100		**450**	500.0	0	90.1	1	201	10/08/2015
Acrylonitrile	5.0		**53.9**	50.00	0	107.9	74.1	128	10/08/2015
Allyl chloride	5.0		**50.7**	50.00	0	101.4	71.5	123	10/08/2015
Benzene	2.0		**52.2**	50.00	0	104.4	80	114	10/08/2015
Bromobenzene	5.0		**36.8**	50.00	0	73.5	73.2	118	10/08/2015
Bromochloromethane	5.0		**51.3**	50.00	0	102.6	73.3	121	10/08/2015
Bromodichloromethane	5.0		**53.5**	50.00	0	107.0	81.6	121	10/08/2015
Bromoform	5.0		**53.4**	50.00	0	106.8	83.1	127	10/08/2015
Bromomethane	10.0		**66.9**	50.00	0	133.8	44.4	154	10/08/2015
Carbon disulfide	5.0		**47.9**	50.00	0	95.8	73.2	118	10/08/2015
Carbon tetrachloride	5.0		**50.4**	50.00	0	100.9	79.4	130	10/08/2015
Chlorobenzene	5.0		**47.8**	50.00	0	95.7	81.4	110	10/08/2015
Chloroethane	10.0		**56.8**	50.00	0	113.5	52.1	137	10/08/2015

Client: Trihydro Corporation **Work Order:** 15100377

Client Project: Soil Vapor System **Report Date:** 14-Oct-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 113010 **SampType:** LCS Units **µg/L**

SampID: LCS-R151008-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloroform	5.0		**51.4**	50.00	0	102.7	82.7	116	10/08/2015
Chloromethane	10.0		**53.4**	50.00	0	106.8	48.2	144	10/08/2015
Chloroprene	20.0		**46.0**	50.00	0	92.0	80.6	126	10/08/2015
cis-1,2-Dichloroethene	5.0		**50.3**	50.00	0	100.6	78.2	116	10/08/2015
cis-1,3-Dichloropropene	5.0		**56.4**	50.00	0	112.9	83	119	10/08/2015
cis-1,4-Dichloro-2-butene	5.0		**41.7**	50.00	0	83.4	60.7	137	10/08/2015
Cyclohexanone	50.0		**451**	500.0	0	90.2	54.2	145	10/08/2015
Dibromochloromethane	5.0		**52.2**	50.00	0	104.3	81.2	121	10/08/2015
Dibromomethane	5.0		**55.1**	50.00	0	110.1	78.3	118	10/08/2015
Dichlorodifluoromethane	10.0		**52.6**	50.00	0	105.1	20.6	154	10/08/2015
Ethyl acetate	10.0		**53.1**	50.00	0	106.1	73.1	116	10/08/2015
Ethyl ether	5.0		**49.9**	50.00	0	99.8	75.2	109	10/08/2015
Ethyl methacrylate	5.0		**47.8**	50.00	0	95.6	80.1	113	10/08/2015
Ethylbenzene	5.0		**47.4**	50.00	0	94.8	77.2	113	10/08/2015
Hexachlorobutadiene	5.0		**45.7**	50.00	0	91.4	77.3	123	10/08/2015
Hexachloroethane	10.0		**42.0**	50.00	0	83.9	74.6	117	10/08/2015
Iodomethane	5.0		**57.0**	50.00	0	114.1	61.3	140	10/08/2015
Isopropylbenzene	5.0		**48.2**	50.00	0	96.4	81.3	114	10/08/2015
m,p-Xylenes	5.0		**94.6**	100.0	0	94.6	79.6	113	10/08/2015
Methacrylonitrile	10.0		**53.9**	50.00	0	107.9	77.2	125	10/08/2015
Methyl Methacrylate	5.0		**51.1**	50.00	0	102.2	74.2	121	10/08/2015
Methyl tert-butyl ether	2.0		**53.9**	50.00	0	107.8	76.8	117	10/08/2015
Methylacrylate	10.0		**56.7**	50.00	0	113.4	78	124	10/08/2015
Methylene chloride	5.0		**47.9**	50.00	0	95.9	74.1	114	10/08/2015
Naphthalene	10.0		**45.9**	50.00	0	91.9	77.9	122	10/08/2015
n-Butyl acetate	25.0		**45.1**	50.00	0	90.1	74	120	10/08/2015
n-Butylbenzene	5.0		**42.7**	50.00	0	85.3	71.1	120	10/08/2015
n-Heptane	20.0		**49.6**	50.00	0	99.2	67.4	129	10/08/2015
n-Hexane	20.0		**46.5**	50.00	0	93.0	68.4	126	10/08/2015
Nitrobenzene	50.0		**400**	500.0	0	79.9	37.9	181	10/08/2015
n-Propylbenzene	5.0		**43.7**	50.00	0	87.3	74.6	118	10/08/2015
o-Xylene	5.0		**46.7**	50.00	0	93.4	80.1	111	10/08/2015
Pentachloroethane	20.0		**44.8**	50.00	0	89.6	78.8	117	10/08/2015
p-Isopropyltoluene	5.0		**44.7**	50.00	0	89.4	77.6	118	10/08/2015
Propionitrile	50.0		**561**	500.0	0	112.2	72.9	137	10/08/2015
sec-Butylbenzene	5.0		**44.6**	50.00	0	89.1	74.5	119	10/08/2015
Styrene	5.0		**48.9**	50.00	0	97.8	83.4	113	10/08/2015
tert-Butylbenzene	5.0		**42.0**	50.00	0	83.9	75.9	114	10/08/2015
Tetrachloroethene	5.0		**45.9**	50.00	0	91.9	72.5	125	10/08/2015
Tetrahydrofuran	20.0		**49.7**	50.00	0	99.5	69.6	125	10/08/2015
Toluene	5.0		**47.1**	50.00	0	94.2	77.5	113	10/08/2015
trans-1,2-Dichloroethene	5.0		**50.2**	50.00	0	100.4	79	114	10/08/2015
trans-1,3-Dichloropropene	5.0		**47.2**	50.00	0	94.3	78	115	10/08/2015
trans-1,4-Dichloro-2-butene	10.0		**37.4**	50.00	0	74.8	63.3	128	10/08/2015
Trichloroethene	5.0		**52.3**	50.00	0	104.6	84.4	114	10/08/2015
Trichlorofluoromethane	5.0		**45.8**	50.00	0	91.7	75.2	132	10/08/2015
Vinyl acetate	10.0		**49.3**	50.00	0	98.6	64.5	127	10/08/2015

Teklab, Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Trihydro Corporation

Client Project: Soil Vapor System

Work Order: 15100377

Report Date: 14-Oct-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 113010 **SampType:** LCS Units **µg/L**

SampID: LCS-R151008-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Vinyl chloride	2.0		**52.6**	50.00	0	105.3	58	134	10/08/2015
Surr: 1,2-Dichloroethane-d4			**47.3**	50.00		94.6	74.7	129	10/08/2015
Surr: 4-Bromofluorobenzene			**46.9**	50.00		93.7	86	119	10/08/2015
Surr: Dibromofluoromethane			**51.5**	50.00		102.9	81.7	123	10/08/2015
Surr: Toluene-d8			**46.8**	50.00		93.7	84.1	114	10/08/2015

Batch 113010 **SampType:** MS Units **µg/L**

SampID: 15100381-003GMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1-Dichloroethene	250		**2280**	2500	0	91.4	35.7	136	10/08/2015
Benzene	100		**2730**	2500	107.5	104.9	62.5	121	10/08/2015
Chlorobenzene	250		**2320**	2500	0	93.0	78.6	114	10/08/2015
Ethylbenzene	250		**2490**	2500	73.50	96.6	74.4	130	10/08/2015
m,p-Xylenes	250		**3270**	2500	802.5	98.7	70.5	126	10/08/2015
o-Xylene	250		**2300**	2500	0	91.8	71.2	124	10/08/2015
Toluene	250		**2280**	2500	0	91.0	69.5	118	10/08/2015
Trichloroethene	250		**2690**	2500	0	107.6	69.4	117	10/08/2015
Surr: 1,2-Dichloroethane-d4			**2440**	2500		97.7	74.7	129	10/08/2015
Surr: 4-Bromofluorobenzene			**2360**	2500		94.2	86	119	10/08/2015
Surr: Dibromofluoromethane			**2580**	2500		103.1	81.7	123	10/08/2015
Surr: Toluene-d8			**2290**	2500		91.8	84.3	114	10/08/2015

Batch 113010 **SampType:** MSD Units **µg/L** RPD Limit **20**

SampID: 15100381-003GMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1-Dichloroethene	250		**2260**	2500	0	90.2	2284	1.30	10/08/2015
Benzene	100		**2690**	2500	107.5	103.4	2730	1.42	10/08/2015
Chlorobenzene	250		**2310**	2500	0	92.6	2325	0.47	10/08/2015
Ethylbenzene	250		**2480**	2500	73.50	96.2	2488	0.34	10/08/2015
m,p-Xylenes	250		**3250**	2500	802.5	97.9	3270	0.58	10/08/2015
o-Xylene	250		**2300**	2500	0	92.2	2295	0.39	10/08/2015
Toluene	250		**2260**	2500	0	90.3	2276	0.86	10/08/2015
Trichloroethene	250		**2660**	2500	0	106.5	2691	1.06	10/08/2015
Surr: 1,2-Dichloroethane-d4			**2400**	2500		95.8			10/08/2015
Surr: 4-Bromofluorobenzene			**2370**	2500		94.9			10/08/2015
Surr: Dibromofluoromethane			**2580**	2500		103.3			10/08/2015
Surr: Toluene-d8			**2310**	2500		92.5			10/08/2015

Receiving Check List

http://www.teklabinc.com/

Client: Trihydro Corporation
Client Project: Soil Vapor System

Work Order: 15100377
Report Date: 14-Oct-15

Carrier: Nick Harvey
Received By: KF

Completed by: Kalyn Foecke
On: 07-Oct-15
Kalyn Foecke

Reviewed by: Elizabeth A. Hurley
On: 07-Oct-15
Elizabeth A. Hurley

Pages to follow: Chain of custody 1 Extra pages included 0

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C 5.82
Type of thermal preservation?	None ☐	Ice ☑	Blue Ice ☐	Dry Ice ☐
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Reported field parameters measured:	Field ☐	Lab ☐	NA ☑	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐		

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes ☑	No ☐	No VOA vials ☐
Water - TOX containers have zero headspace?	Yes ☐	No ☐	No TOX containers ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	NA ☐
NPDES/CWA TCN interferences checked/treated in the field?	Yes ☐	No ☐	NA ☑

Any No responses must be detailed below or on the COC.

CHAIN OF CUSTODY

pg. ____ of ____ Work Order # 15100377

TEKLAB, INC. 5445 Horseshoe Lake Road ~ Collinsville, IL 62234 ~ Phone: (618) 344-1004 ~ Fax: (618) 344-1005

Client: Trihydro
Address: 1252 Commerce Drive
City / State / Zip: Laramie, WY 82070
Contact: Todd Aseltyne Phone: 513 429 7470
E-Mail: Taseltyne@Trihydro.com Fax:

- Are these samples known to be involved in litigation? If yes, a surcharge will apply. ☐ Yes ☐ No
- Are these samples known to be hazardous? ☐ Yes ☐ No
- Are there any required reporting limits to be met on the requested analysis? If yes, please provide limits in comment section. ☐ Yes ☐ No

Samples on: ☑ Ice ☐ Blue Ice ☐ No Ice 5.8 °C
Preserved in: ☐ Lab ☑ Field FOR LAB USE ONLY
Lab Notes: 10/7/15
ok lead spec 10/7/15

Comments: 3 DAY

Project Name / Number	Sample Collector's Name
Soil Vapor System	Todd Hanford

Results Requested: ☐ Standard ☐ 1-2 Day (100% Surcharge) ☐ Other ☑ 3 Day (50% Surcharge)

Billing Instructions:

Lab Use Only	Sample Identification	Date/Time Sampled	UNPRES	HNO_3	NaOH	H_2SO_4	HCL	MeOH	$NaHSO_4$	Other	Water	Drinking Water	Soil	Sludge	Sp. Waste	VOC	Flash	Lead	PAH
15100377-001	Tank 3	10/7/15 0715														X	X	X	X

Relinquished By	Date / Time	Received By	Date / Time
Todd Hanford	10/7/15 800		10/7/15 9:35
	10/7/15 11:20	Kalyn Jolene	10/7/15 1120

The individual signing this agreement on behalf of client acknowledges that he/she has read and understands the terms and conditions of this agreement, on the reverse side, and that he/she has the authority to sign on behalf of client.

WHITE – LAB YELLOW – SAMPLER'S COPY

November 19, 2015

Todd Aseltyne
Trihydro Corporation
1252 Commerce Drive
Laramie, WY 82070
TEL: (513) 429-7470
FAX:

RE: Soil Vapor System **WorkOrder:** 15110842

Dear Todd Aseltyne:

TEKLAB, INC received 1 sample on 11/16/2015 11:20:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Marvin L. Darling II

Marvin L. Darling
Project Manager
(618)344-1004 ex 41
mdarling@teklabinc.com

Report Contents

http://www.teklabinc.com/

Client: Trihydro Corporation
Client Project: Soil Vapor System

Work Order: 15110842
Report Date: 19-Nov-15

This reporting package includes the following:

Client: Trihydro Corporation **Work Order:** 15110842

Client Project: Soil Vapor System **Report Date:** 19-Nov-15

Abbr Definition

Abbr	Definition
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
DNI	Did not ignite
DUP	Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

# -	Unknown hydrocarbon	B -	Analyte detected in associated Method Blank
E -	Value above quantitation range	H -	Holding times exceeded
I -	Associated internal standard was outside method criteria	J -	Analyte detected below quantitation limits
M -	Manual Integration used to determine area response	ND -	Not Detected at the Reporting Limit
R -	RPD outside accepted recovery limits	S -	Spike Recovery outside recovery limits
T -	TIC(Tentatively identified compound)	X -	Value exceeds Maximum Contaminant Level

Client: Trihydro Corporation

Client Project: Soil Vapor System

Work Order: 15110842

Report Date: 19-Nov-15

Cooler Receipt Temp: 9.62 °C

Locations and Accreditations

	Collinsville	Springfield	Kansas City	Collinsville Air
Address	5445 Horseshoe Lake Road	3920 Pintail Dr	8421 Nieman Road	5445 Horseshoe Lake Road
	Collinsville, IL 62234-7425	Springfield, IL 62711-9415	Lenexa, KS 66214	Collinsville, IL 62234-7425
Phone	(618) 344-1004	(217) 698-1004	(913) 541-1998	(618) 344-1004
Fax	(618) 344-1005	(217) 698-1005	(913) 541-1998	(618) 344-1005
Email	jhriley@teklabinc.com	KKlostermann@teklabinc.com	dthompson@teklabinc.com	EHurley@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2016	Collinsville
Kansas	KDHE	E-10374	NELAP	1/31/2016	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2016	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2016	Collinsville
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2016	Collinsville
Arkansas	ADEQ	88-0966		3/14/2016	Collinsville
Illinois	IDPH	17584		5/31/2017	Collinsville
Kentucky	KDEP	98006		12/31/2015	Collinsville
Kentucky	UST	0073		1/31/2016	Collinsville
Missouri	MDNR	00930		5/31/2017	Collinsville
Oklahoma	ODEQ	9978		8/31/2016	Collinsville

Teklab, Inc. Environmental Laboratory

Laboratory Results

http://www.teklabinc.com/

Client: Trihydro Corporation
Work Order: 15110842
Client Project: Soil Vapor System
Report Date: 19-Nov-15
Lab ID: 15110842-001
Client Sample ID: Tank 3
Matrix: AQUEOUS
Collection Date: 11/16/2015 8:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1020B								
Ignitability, Closed Cup	NELAP	60		**>200**	°F	1	11/16/2015 15:27	R211617
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Lead	NELAP	0.0150		**0.0160**	mg/L	1	11/17/2015 10:24	114194
SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1-Methylnaphthalene		0.00050		**ND**	mg/L	5	11/17/2015 19:43	114191
Acenaphthene	NELAP	0.00050		**ND**	mg/L	5	11/17/2015 19:43	114191
Acenaphthylene	NELAP	0.00050		**ND**	mg/L	5	11/17/2015 19:43	114191
Anthracene	NELAP	0.00050		**ND**	mg/L	5	11/17/2015 19:43	114191
Benzo(a)anthracene	NELAP	0.00050		**ND**	mg/L	5	11/17/2015 19:43	114191
Benzo(a)pyrene	NELAP	0.00050		**ND**	mg/L	5	11/17/2015 19:43	114191
Benzo(b)fluoranthene	NELAP	0.00050		**ND**	mg/L	5	11/17/2015 19:43	114191
Benzo(g,h,i)perylene	NELAP	0.00050		**ND**	mg/L	5	11/17/2015 19:43	114191
Benzo(k)fluoranthene	NELAP	0.00050		**ND**	mg/L	5	11/17/2015 19:43	114191
Chrysene	NELAP	0.00050		**ND**	mg/L	5	11/17/2015 19:43	114191
Dibenzo(a,h)anthracene	NELAP	0.00050		**ND**	mg/L	5	11/17/2015 19:43	114191
Fluoranthene	NELAP	0.00050		**ND**	mg/L	5	11/17/2015 19:43	114191
Fluorene	NELAP	0.00050		**ND**	mg/L	5	11/17/2015 19:43	114191
Indeno(1,2,3-cd)pyrene	NELAP	0.00050		**ND**	mg/L	5	11/17/2015 19:43	114191
Naphthalene	NELAP	0.00050		**ND**	mg/L	5	11/17/2015 19:43	114191
Phenanthrene	NELAP	0.00050		**ND**	mg/L	5	11/17/2015 19:43	114191
Pyrene	NELAP	0.00050		**ND**	mg/L	5	11/17/2015 19:43	114191
Surr: 2-Fluorobiphenyl		10-143		**68.0**	%REC	5	11/17/2015 19:43	114191
Surr: Nitrobenzene-d5		10-166		**59.5**	%REC	5	11/17/2015 19:43	114191
Surr: p-Terphenyl-d14		10-137		**78.5**	%REC	5	11/17/2015 19:43	114191
Elevated reporting limit due to sample extract composition.								
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
1,1,1-Trichloroethane	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
1,1,2,2-Tetrachloroethane	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
1,1,2-Trichloro-1,2,2-trifluoroethane		20.0		**ND**	µg/L	1	11/17/2015 12:46	114221
1,1,2-Trichloroethane	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
1,1-Dichloro-2-propanone		50.0		**ND**	µg/L	1	11/17/2015 12:46	114221
1,1-Dichloroethane	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
1,1-Dichloroethene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
1,1-Dichloropropene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
1,2,3-Trichlorobenzene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
1,2,3-Trichloropropane	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
1,2,3-Trimethylbenzene		5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
1,2,4-Trichlorobenzene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
1,2,4-Trimethylbenzene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
1,2-Dibromo-3-chloropropane	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
1,2-Dibromoethane	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
1,2-Dichlorobenzene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
1,2-Dichloroethane	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
1,2-Dichloropropane	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
1,3,5-Trimethylbenzene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
1,3-Dichlorobenzene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221

Client: Trihydro Corporation **Work Order:** 15110842

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Matrix: AQUEOUS **Collection Date:** 11/16/2015 8:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,3-Dichloropropane	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
1,4-Dichlorobenzene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
1-Chlorobutane	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
2,2-Dichloropropane	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
2-Butanone	NELAP	25.0		**ND**	µg/L	1	11/17/2015 12:46	114221
2-Chloroethyl vinyl ether	NELAP	20.0		**ND**	µg/L	1	11/17/2015 12:46	114221
2-Chlorotoluene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
2-Hexanone	NELAP	25.0		**ND**	µg/L	1	11/17/2015 12:46	114221
2-Nitropropane	NELAP	50.0		**ND**	µg/L	1	11/17/2015 12:46	114221
4-Chlorotoluene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
4-Methyl-2-pentanone	NELAP	25.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Acetone	NELAP	25.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Acetonitrile	NELAP	50.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Acrolein	NELAP	100		**ND**	µg/L	1	11/17/2015 12:46	114221
Acrylonitrile	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Allyl chloride	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Benzene	NELAP	2.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Bromobenzene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Bromochloromethane	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Bromodichloromethane	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Bromoform	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Bromomethane	NELAP	10.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Carbon disulfide	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Carbon tetrachloride	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Chlorobenzene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Chloroethane	NELAP	10.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Chloroform	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Chloromethane	NELAP	10.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Chloroprene	NELAP	20.0		**ND**	µg/L	1	11/17/2015 12:46	114221
cis-1,2-Dichloroethene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
cis-1,3-Dichloropropene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
cis-1,4-Dichloro-2-butene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Cyclohexanone		50.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Dibromochloromethane	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Dibromomethane	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Dichlorodifluoromethane	NELAP	10.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Ethyl acetate	NELAP	10.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Ethyl ether	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Ethyl methacrylate	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Ethylbenzene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Hexachlorobutadiene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Hexachloroethane	NELAP	10.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Iodomethane	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Isopropylbenzene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
m,p-Xylenes	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Methacrylonitrile	NELAP	10.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Methyl Methacrylate	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221

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Matrix: AQUEOUS **Collection Date:** 11/16/2015 8:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Methyl tert-butyl ether	NELAP	2.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Methylacrylate	NELAP	10.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Methylene chloride	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Naphthalene	NELAP	10.0		**ND**	µg/L	1	11/17/2015 12:46	114221
n-Butyl acetate		25.0		**ND**	µg/L	1	11/17/2015 12:46	114221
n-Butylbenzene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
n-Heptane		20.0		**ND**	µg/L	1	11/17/2015 12:46	114221
n-Hexane		20.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Nitrobenzene	NELAP	50.0		**ND**	µg/L	1	11/17/2015 12:46	114221
n-Propylbenzene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
o-Xylene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Pentachloroethane	NELAP	20.0		**ND**	µg/L	1	11/17/2015 12:46	114221
p-Isopropyltoluene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Propionitrile	NELAP	50.0		**ND**	µg/L	1	11/17/2015 12:46	114221
sec-Butylbenzene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Styrene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
tert-Butylbenzene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Tetrachloroethene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Tetrahydrofuran	NELAP	20.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Toluene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
trans-1,2-Dichloroethene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
trans-1,3-Dichloropropene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
trans-1,4-Dichloro-2-butene	NELAP	10.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Trichloroethene	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Trichlorofluoromethane	NELAP	5.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Vinyl acetate	NELAP	10.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Vinyl chloride	NELAP	2.0		**ND**	µg/L	1	11/17/2015 12:46	114221
Surr: 1,2-Dichloroethane-d4		74.7-129		**94.8**	%REC	1	11/17/2015 12:46	114221
Surr: 4-Bromofluorobenzene		86-119		**92.3**	%REC	1	11/17/2015 12:46	114221
Surr: Dibromofluoromethane		81.7-123		**106.7**	%REC	1	11/17/2015 12:46	114221
Surr: Toluene-d8		84.3-114		**94.0**	%REC	1	11/17/2015 12:46	114221

LCS and LCSD recovered outside upper QC limits for iodomethane. Sample results are below reporting limit. Data is reportable per 2009 TNI Standard (Volume1, Module 4, section 1.7.4.2).

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Report Date: 19-Nov-15

SW-846 1020B

Batch R211617 **SampType:** LCS Units °F
SampID: LCS-R211617

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ignitability, Closed Cup	60		**82**	81.00	0	101.2	97	103	11/16/2015

Batch R211617 **SampType:** DUP Units °F RPD Limit **5**
SampID: 15110768-002ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ignitability, Closed Cup	60		**>200**				0	0.00	11/16/2015

SW-846 3005A, 6010B, METALS BY ICP (TOTAL)

Batch 114194 **SampType:** MBLK Units **mg/L**
SampID: MBLK-114194

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	0.0150		**< 0.0150**	0.01500	0	0	-100	100	11/17/2015

Batch 114194 **SampType:** LCS Units **mg/L**
SampID: LCS-114194

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	0.0150		**0.507**	0.5000	0	101.3	85	115	11/17/2015

Batch 114194 **SampType:** MS Units **mg/L**
SampID: 15110818-002BMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	0.0150		**0.527**	0.5000	0.02810	99.7	75	125	11/17/2015

Batch 114194 **SampType:** MSD Units **mg/L** RPD Limit **20**
SampID: 15110818-002BMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lead	0.0150		**0.525**	0.5000	0.02810	99.5	0.5266	0.23	11/17/2015

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SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114191 **SampType:** MBLK Units **mg/L**

SampID: MBLK-114191

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1-Methylnaphthalene	0.00010		**ND**						11/17/2015
Acenaphthene	0.00010		**ND**						11/17/2015
Acenaphthylene	0.00010		**ND**						11/17/2015
Anthracene	0.00010		**ND**						11/17/2015
Benzo(a)anthracene	0.00010		**ND**						11/17/2015
Benzo(a)pyrene	0.00010		**ND**						11/17/2015
Benzo(b)fluoranthene	0.00010		**ND**						11/17/2015
Benzo(g,h,i)perylene	0.00010		**ND**						11/17/2015
Benzo(k)fluoranthene	0.00010		**ND**						11/17/2015
Chrysene	0.00010		**ND**						11/17/2015
Dibenzo(a,h)anthracene	0.00010		**ND**						11/17/2015
Fluoranthene	0.00010		**ND**						11/17/2015
Fluorene	0.00010		**ND**						11/17/2015
Indeno(1,2,3-cd)pyrene	0.00010		**ND**						11/17/2015
Naphthalene	0.00010		**ND**						11/17/2015
Phenanthrene	0.00010		**ND**						11/17/2015
Pyrene	0.00010		**ND**						11/17/2015
Surr: 2-Fluorobiphenyl			**0.00274**	).00500(		54.8	44.4	89.6	11/17/2015
Surr: Nitrobenzene-d5			**0.00266**	).00500(		53.2	40.9	81.4	11/17/2015
Surr: p-Terphenyl-d14			**0.00360**	).00500(		72.0	54.3	104	11/17/2015

Batch 114191 **SampType:** LCS Units **mg/L**

SampID: LCS-114191

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1-Methylnaphthalene	0.00010		**0.00288**	).00500(	0	57.6	44.3	94.9	11/17/2015
Acenaphthene	0.00010		**0.00333**	).00500(	0	66.6	50.1	94.9	11/17/2015
Acenaphthylene	0.00010		**0.00331**	).00500(	0	66.2	50.6	96.9	11/17/2015
Anthracene	0.00010		**0.00361**	).00500(	0	72.2	53.5	94.3	11/17/2015
Benzo(a)anthracene	0.00010		**0.00388**	).00500(	0	77.6	48.3	104	11/17/2015
Benzo(a)pyrene	0.00010		**0.00369**	).00500(	0	73.8	52	103	11/17/2015
Benzo(b)fluoranthene	0.00010		**0.00362**	).00500(	0	72.4	55.3	98.4	11/17/2015
Benzo(g,h,i)perylene	0.00010		**0.00390**	).00500(	0	78.0	51.1	104	11/17/2015
Benzo(k)fluoranthene	0.00010		**0.00369**	).00500(	0	73.8	56.1	99.3	11/17/2015
Chrysene	0.00010		**0.00358**	).00500(	0	71.6	54.3	99.4	11/17/2015
Dibenzo(a,h)anthracene	0.00010		**0.00393**	).00500(	0	78.6	53.7	104	11/17/2015
Fluoranthene	0.00010		**0.00349**	).00500(	0	69.8	56.8	96.9	11/17/2015
Fluorene	0.00010		**0.00341**	).00500(	0	68.2	53.6	97	11/17/2015
Indeno(1,2,3-cd)pyrene	0.00010		**0.00393**	).00500(	0	78.6	53.4	103	11/17/2015
Naphthalene	0.00010		**0.00301**	).00500(	0	60.2	43.4	95	11/17/2015
Phenanthrene	0.00010		**0.00351**	).00500(	0	70.2	53.8	94.2	11/17/2015
Pyrene	0.00010		**0.00344**	).00500(	0	68.8	56.1	97.1	11/17/2015
Surr: 2-Fluorobiphenyl			**0.00286**	).00500(		57.2	44.4	89.6	11/17/2015
Surr: Nitrobenzene-d5			**0.00290**	).00500(		58.0	40.9	81.4	11/17/2015
Surr: p-Terphenyl-d14			**0.00356**	).00500(		71.2	54.3	104	11/17/2015

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SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch **114191** **SampType:** **LCSD** Units **mg/L** RPD Limit **40**

SampID: LCSD-114191

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1-Methylnaphthalene	0.00010		**0.00292**	).00500(	0	58.4	0.002880	1.38	11/17/2015
Acenaphthene	0.00010		**0.00339**	).00500(	0	67.8	0.003330	1.79	11/17/2015
Acenaphthylene	0.00010		**0.00337**	).00500(	0	67.4	0.003310	1.80	11/17/2015
Anthracene	0.00010		**0.00368**	).00500(	0	73.6	0.003610	1.92	11/17/2015
Benzo(a)anthracene	0.00010		**0.00395**	).00500(	0	79.0	0.003880	1.79	11/17/2015
Benzo(a)pyrene	0.00010		**0.00375**	).00500(	0	75.0	0.003690	1.61	11/17/2015
Benzo(b)fluoranthene	0.00010		**0.00369**	).00500(	0	73.8	0.003620	1.92	11/17/2015
Benzo(g,h,i)perylene	0.00010		**0.00393**	).00500(	0	78.6	0.003900	0.77	11/17/2015
Benzo(k)fluoranthene	0.00010		**0.00368**	).00500(	0	73.6	0.003690	0.27	11/17/2015
Chrysene	0.00010		**0.00366**	).00500(	0	73.2	0.003580	2.21	11/17/2015
Dibenzo(a,h)anthracene	0.00010		**0.00397**	).00500(	0	79.4	0.003930	1.01	11/17/2015
Fluoranthene	0.00010		**0.00352**	).00500(	0	70.4	0.003490	0.86	11/17/2015
Fluorene	0.00010		**0.00349**	).00500(	0	69.8	0.003410	2.32	11/17/2015
Indeno(1,2,3-cd)pyrene	0.00010		**0.00395**	).00500(	0	79.0	0.003930	0.51	11/17/2015
Naphthalene	0.00010		**0.00309**	).00500(	0	61.8	0.003010	2.62	11/17/2015
Phenanthrene	0.00010		**0.00366**	).00500(	0	73.2	0.003510	4.18	11/17/2015
Pyrene	0.00010		**0.00359**	).00500(	0	71.8	0.003440	4.27	11/17/2015
Surr: 2-Fluorobiphenyl			**0.00286**	).00500(		57.2			11/17/2015
Surr: Nitrobenzene-d5			**0.00296**	).00500(		59.2			11/17/2015
Surr: p-Terphenyl-d14			**0.00358**	).00500(		71.6			11/17/2015

Client: Trihydro Corporation **Work Order:** 15110842

Client Project: Soil Vapor System **Report Date:** 19-Nov-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114221 **SampType:** MBLK Units **µg/L**

SampID: MBLK-R151117-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1,2-Tetrachloroethane	5.0		**ND**						11/17/2015
1,1,1-Trichloroethane	5.0		**ND**						11/17/2015
1,1,2,2-Tetrachloroethane	5.0		**ND**						11/17/2015
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0		**ND**						11/17/2015
1,1,2-Trichloroethane	5.0		**ND**						11/17/2015
1,1-Dichloro-2-propanone	50.0		**ND**						11/17/2015
1,1-Dichloroethane	5.0		**ND**						11/17/2015
1,1-Dichloroethene	5.0		**ND**						11/17/2015
1,1-Dichloropropene	5.0		**ND**						11/17/2015
1,2,3-Trichlorobenzene	5.0		**ND**						11/17/2015
1,2,3-Trichloropropane	5.0		**ND**						11/17/2015
1,2,3-Trimethylbenzene	5.0		**ND**						11/17/2015
1,2,4-Trichlorobenzene	5.0		**ND**						11/17/2015
1,2,4-Trimethylbenzene	5.0		**ND**						11/17/2015
1,2-Dibromo-3-chloropropane	5.0		**ND**						11/17/2015
1,2-Dibromoethane	5.0		**ND**						11/17/2015
1,2-Dichlorobenzene	5.0		**ND**						11/17/2015
1,2-Dichloroethane	5.0		**ND**						11/17/2015
1,2-Dichloropropane	5.0		**ND**						11/17/2015
1,3,5-Trimethylbenzene	5.0		**ND**						11/17/2015
1,3-Dichlorobenzene	5.0		**ND**						11/17/2015
1,3-Dichloropropane	5.0		**ND**						11/17/2015
1,4-Dichlorobenzene	5.0		**ND**						11/17/2015
1-Chlorobutane	5.0		**ND**						11/17/2015
2,2-Dichloropropane	5.0		**ND**						11/17/2015
2-Butanone	25.0		**ND**						11/17/2015
2-Chloroethyl vinyl ether	20.0		**ND**						11/17/2015
2-Chlorotoluene	5.0		**ND**						11/17/2015
2-Hexanone	25.0		**ND**						11/17/2015
2-Nitropropane	50.0		**ND**						11/17/2015
4-Chlorotoluene	5.0		**ND**						11/17/2015
4-Methyl-2-pentanone	25.0		**ND**						11/17/2015
Acetone	25.0		**ND**						11/17/2015
Acetonitrile	50.0		**ND**						11/17/2015
Acrolein	100		**ND**						11/17/2015
Acrylonitrile	5.0		**ND**						11/17/2015
Allyl chloride	5.0		**ND**						11/17/2015
Benzene	2.0		**ND**						11/17/2015
Bromobenzene	5.0		**ND**						11/17/2015
Bromochloromethane	5.0		**ND**						11/17/2015
Bromodichloromethane	5.0		**ND**						11/17/2015
Bromoform	5.0		**ND**						11/17/2015
Bromomethane	10.0		**ND**						11/17/2015
Carbon disulfide	5.0		**ND**						11/17/2015
Carbon tetrachloride	5.0		**ND**						11/17/2015
Chlorobenzene	5.0		**ND**						11/17/2015
Chloroethane	10.0		**ND**						11/17/2015

Teklab, Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Trihydro Corporation
Client Project: Soil Vapor System

Work Order: 15110842
Report Date: 19-Nov-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114221 **SampType:** MBLK Units µg/L
SampID: MBLK-R151117-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloroform	5.0		ND						11/17/2015
Chloromethane	10.0		ND						11/17/2015
Chloroprene	20.0		ND						11/17/2015
cis-1,2-Dichloroethene	5.0		ND						11/17/2015
cis-1,3-Dichloropropene	5.0		ND						11/17/2015
cis-1,4-Dichloro-2-butene	5.0		ND						11/17/2015
Cyclohexanone	50.0		ND						11/17/2015
Dibromochloromethane	5.0		ND						11/17/2015
Dibromomethane	5.0		ND						11/17/2015
Dichlorodifluoromethane	10.0		ND						11/17/2015
Ethyl acetate	10.0		ND						11/17/2015
Ethyl ether	5.0		ND						11/17/2015
Ethyl methacrylate	5.0		ND						11/17/2015
Ethylbenzene	5.0		ND						11/17/2015
Hexachlorobutadiene	5.0		ND						11/17/2015
Hexachloroethane	10.0		ND						11/17/2015
Iodomethane	5.0		ND						11/17/2015
Isopropylbenzene	5.0		ND						11/17/2015
m,p-Xylenes	5.0		ND						11/17/2015
Methacrylonitrile	10.0		ND						11/17/2015
Methyl Methacrylate	5.0		ND						11/17/2015
Methyl tert-butyl ether	2.0		ND						11/17/2015
Methylacrylate	10.0		ND						11/17/2015
Methylene chloride	5.0		ND						11/17/2015
Naphthalene	10.0		ND						11/17/2015
n-Butyl acetate	25.0		ND						11/17/2015
n-Butylbenzene	5.0		ND						11/17/2015
n-Heptane	20.0		ND						11/17/2015
n-Hexane	20.0		ND						11/17/2015
Nitrobenzene	50.0		ND						11/17/2015
n-Propylbenzene	5.0		ND						11/17/2015
o-Xylene	5.0		ND						11/17/2015
Pentachloroethane	20.0		ND						11/17/2015
p-Isopropyltoluene	5.0		ND						11/17/2015
Propionitrile	50.0		ND						11/17/2015
sec-Butylbenzene	5.0		ND						11/17/2015
Styrene	5.0		ND						11/17/2015
tert-Butylbenzene	5.0		ND						11/17/2015
Tetrachloroethene	5.0		ND						11/17/2015
Tetrahydrofuran	20.0		ND						11/17/2015
Toluene	5.0		ND						11/17/2015
trans-1,2-Dichloroethene	5.0		ND						11/17/2015
trans-1,3-Dichloropropene	5.0		ND						11/17/2015
trans-1,4-Dichloro-2-butene	10.0		ND						11/17/2015
Trichloroethene	5.0		ND						11/17/2015
Trichlorofluoromethane	5.0		ND						11/17/2015
Vinyl acetate	10.0		ND						11/17/2015

Client: Trihydro Corporation
Work Order: 15110842
Client Project: Soil Vapor System
Report Date: 19-Nov-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114221 **SampType:** MBLK Units **µg/L**
SampID: MBLK-R151117-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Vinyl chloride	2.0		**ND**						11/17/2015
Surr: 1,2-Dichloroethane-d4			**47.4**	50.00		94.8	74.7	129	11/17/2015
Surr: 4-Bromofluorobenzene			**46.5**	50.00		93.1	86	119	11/17/2015
Surr: Dibromofluoromethane			**51.9**	50.00		103.8	81.7	123	11/17/2015
Surr: Toluene-d8			**46.4**	50.00		92.9	84.3	114	11/17/2015

Client: Trihydro Corporation | **Work Order:** 15110842

Client Project: Soil Vapor System | **Report Date:** 19-Nov-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114221 **SampType:** LCSD Units **µg/L** RPD Limit **40**

SampID: LCSD-R151117-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1,1,2-Tetrachloroethane	5.0		**53.6**	50.00	0	107.3	51.92	3.24	11/17/2015
1,1,1-Trichloroethane	5.0		**55.2**	50.00	0	110.3	53.09	3.84	11/17/2015
1,1,2,2-Tetrachloroethane	5.0		**45.3**	50.00	0	90.5	44.88	0.84	11/17/2015
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0		**54.5**	50.00	0	109.0	51.48	5.66	11/17/2015
1,1,2-Trichloroethane	5.0		**49.2**	50.00	0	98.4	48.69	1.06	11/17/2015
1,1-Dichloro-2-propanone	50.0		**122**	125.0	0	97.8	114.8	6.27	11/17/2015
1,1-Dichloroethane	5.0		**51.0**	50.00	0	102.1	49.03	4.00	11/17/2015
1,1-Dichloroethene	5.0		**51.1**	50.00	0	102.1	48.04	6.11	11/17/2015
1,1-Dichloropropene	5.0		**54.1**	50.00	0	108.1	51.07	5.69	11/17/2015
1,2,3-Trichlorobenzene	5.0		**52.9**	50.00	0	105.8	51.23	3.19	11/17/2015
1,2,3-Trichloropropane	5.0		**45.0**	50.00	0	89.9	44.79	0.38	11/17/2015
1,2,3-Trimethylbenzene	5.0		**47.0**	50.00	0	94.1	45.62	3.06	11/17/2015
1,2,4-Trichlorobenzene	5.0		**50.6**	50.00	0	101.1	48.77	3.58	11/17/2015
1,2,4-Trimethylbenzene	5.0		**47.4**	50.00	0	94.7	46.26	2.33	11/17/2015
1,2-Dibromo-3-chloropropane	5.0		**44.0**	50.00	0	88.1	43.33	1.63	11/17/2015
1,2-Dibromoethane	5.0		**49.4**	50.00	0	98.8	48.11	2.65	11/17/2015
1,2-Dichlorobenzene	5.0		**48.8**	50.00	0	97.6	47.25	3.21	11/17/2015
1,2-Dichloroethane	5.0		**50.4**	50.00	0	100.8	49.17	2.45	11/17/2015
1,2-Dichloropropane	5.0		**52.8**	50.00	0	105.7	50.40	4.71	11/17/2015
1,3,5-Trimethylbenzene	5.0		**47.6**	50.00	0	95.1	46.35	2.56	11/17/2015
1,3-Dichlorobenzene	5.0		**49.4**	50.00	0	98.8	47.98	2.90	11/17/2015
1,3-Dichloropropane	5.0		**47.3**	50.00	0	94.7	46.76	1.21	11/17/2015
1,4-Dichlorobenzene	5.0		**48.7**	50.00	0	97.4	47.52	2.43	11/17/2015
1-Chlorobutane	5.0		**51.8**	50.00	0	103.5	49.14	5.19	11/17/2015
2,2-Dichloropropane	5.0		**52.7**	50.00	0	105.4	50.71	3.85	11/17/2015
2-Butanone	25.0		**111**	125.0	0	89.0	110.7	0.57	11/17/2015
2-Chloroethyl vinyl ether	20.0		**48.0**	50.00	0	96.0	47.39	1.32	11/17/2015
2-Chlorotoluene	5.0		**46.1**	50.00	0	92.2	44.48	3.53	11/17/2015
2-Hexanone	25.0		**101**	125.0	0	81.1	101.4	0.01	11/17/2015
2-Nitropropane	50.0		**551**	500.0	0	110.1	542.2	1.53	11/17/2015
4-Chlorotoluene	5.0		**47.0**	50.00	0	94.1	45.16	4.08	11/17/2015
4-Methyl-2-pentanone	25.0		**111**	125.0	0	89.1	109.8	1.38	11/17/2015
Acetone	25.0		**104**	125.0	0	83.4	106.2	1.82	11/17/2015
Acetonitrile	50.0		**488**	500.0	0	97.6	456.5	6.62	11/17/2015
Acrolein	100		**420**	500.0	0	84.0	440.2	4.73	11/17/2015
Acrylonitrile	5.0		**49.9**	50.00	0	99.8	49.04	1.72	11/17/2015
Allyl chloride	5.0		**53.0**	50.00	0	106.1	50.98	3.94	11/17/2015
Benzene	2.0		**53.3**	50.00	0	106.7	51.48	3.55	11/17/2015
Bromobenzene	5.0		**43.9**	50.00	0	87.9	43.22	1.65	11/17/2015
Bromochloromethane	5.0		**50.5**	50.00	0	101.1	49.43	2.22	11/17/2015
Bromodichloromethane	5.0		**55.3**	50.00	0	110.7	52.99	4.32	11/17/2015
Bromoform	5.0		**58.9**	50.00	0	117.9	58.43	0.85	11/17/2015
Bromomethane	10.0		**73.7**	50.00	0	147.4	65.32	12.06	11/17/2015
Carbon disulfide	5.0		**50.9**	50.00	0	101.8	48.79	4.19	11/17/2015
Carbon tetrachloride	5.0		**58.3**	50.00	0	116.5	55.06	5.66	11/17/2015
Chlorobenzene	5.0		**49.7**	50.00	0	99.5	48.70	2.09	11/17/2015
Chloroethane	10.0		**54.0**	50.00	0	107.9	51.16	5.31	11/17/2015

Client: Trihydro Corporation **Work Order:** 15110842

Client Project: Soil Vapor System **Report Date:** 19-Nov-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114221 **SampType:** LCSD Units µg/L RPD Limit 40

SampID: LCSD-R151117-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloroform	5.0		**52.7**	50.00	0	105.4	50.48	4.30	11/17/2015
Chloromethane	10.0		**50.4**	50.00	0	100.8	46.88	7.22	11/17/2015
Chloroprene	20.0		**47.9**	50.00	0	95.8	44.62	7.11	11/17/2015
cis-1,2-Dichloroethene	5.0		**50.7**	50.00	0	101.4	48.73	3.94	11/17/2015
cis-1,3-Dichloropropene	5.0		**56.1**	50.00	0	112.1	55.03	1.85	11/17/2015
cis-1,4-Dichloro-2-butene	5.0		**49.6**	50.00	0	99.2	49.60	0.00	11/17/2015
Cyclohexanone	50.0		**408**	500.0	0	81.7	404.9	0.87	11/17/2015
Dibromochloromethane	5.0		**55.9**	50.00	0	111.8	54.93	1.79	11/17/2015
Dibromomethane	5.0		**54.2**	50.00	0	108.3	52.91	2.35	11/17/2015
Dichlorodifluoromethane	10.0		**53.7**	50.00	0	107.4	50.92	5.28	11/17/2015
Ethyl acetate	10.0		**49.1**	50.00	0	98.1	48.17	1.85	11/17/2015
Ethyl ether	5.0		**49.7**	50.00	0	99.5	47.70	4.17	11/17/2015
Ethyl methacrylate	5.0		**47.3**	50.00	0	94.5	45.87	3.01	11/17/2015
Ethylbenzene	5.0		**49.6**	50.00	0	99.2	47.80	3.70	11/17/2015
Hexachlorobutadiene	5.0		**54.1**	50.00	0	108.2	52.11	3.75	11/17/2015
Hexachloroethane	10.0		**53.1**	50.00	0	106.2	51.31	3.43	11/17/2015
Iodomethane	5.0	S	**77.9**	50.00	0	155.8	77.10	1.01	11/17/2015
Isopropylbenzene	5.0		**51.2**	50.00	0	102.5	49.34	3.80	11/17/2015
m,p-Xylenes	5.0		**98.8**	100.0	0	98.8	95.44	3.43	11/17/2015
Methacrylonitrile	10.0		**50.7**	50.00	0	101.4	49.17	3.10	11/17/2015
Methyl Methacrylate	5.0		**47.6**	50.00	0	95.1	46.60	2.02	11/17/2015
Methyl tert-butyl ether	2.0		**58.1**	50.00	0	116.1	56.24	3.18	11/17/2015
Methylacrylate	10.0		**53.2**	50.00	0	106.5	51.64	3.07	11/17/2015
Methylene chloride	5.0		**46.9**	50.00	0	93.7	45.43	3.10	11/17/2015
Naphthalene	10.0		**48.4**	50.00	0	96.8	47.94	0.98	11/17/2015
n-Butyl acetate	25.0		**42.2**	50.00	0	84.5	42.11	0.33	11/17/2015
n-Butylbenzene	5.0		**46.7**	50.00	0	93.4	44.68	4.44	11/17/2015
n-Heptane	20.0		**52.6**	50.00	0	105.3	49.99	5.16	11/17/2015
n-Hexane	20.0		**49.3**	50.00	0	98.7	47.47	3.86	11/17/2015
Nitrobenzene	50.0		**728**	500.0	0	145.7	718.6	1.36	11/17/2015
n-Propylbenzene	5.0		**46.6**	50.00	0	93.2	44.81	3.92	11/17/2015
o-Xylene	5.0		**48.3**	50.00	0	96.6	47.06	2.58	11/17/2015
Pentachloroethane	20.0		**51.7**	50.00	0	103.3	50.67	1.93	11/17/2015
p-Isopropyltoluene	5.0		**49.3**	50.00	0	98.6	47.75	3.19	11/17/2015
Propionitrile	50.0		**509**	500.0	0	101.8	504.6	0.90	11/17/2015
sec-Butylbenzene	5.0		**48.4**	50.00	0	96.7	46.64	3.62	11/17/2015
Styrene	5.0		**50.2**	50.00	0	100.4	48.75	2.91	11/17/2015
tert-Butylbenzene	5.0		**45.5**	50.00	0	91.0	43.73	3.99	11/17/2015
Tetrachloroethene	5.0		**51.2**	50.00	0	102.5	49.49	3.46	11/17/2015
Tetrahydrofuran	20.0		**44.9**	50.00	0	89.8	44.89	0.02	11/17/2015
Toluene	5.0		**49.0**	50.00	0	98.1	46.82	4.61	11/17/2015
trans-1,2-Dichloroethene	5.0		**52.0**	50.00	0	104.0	48.96	6.00	11/17/2015
trans-1,3-Dichloropropene	5.0		**48.8**	50.00	0	97.6	47.51	2.72	11/17/2015
trans-1,4-Dichloro-2-butene	10.0		**42.8**	50.00	0	85.5	42.53	0.52	11/17/2015
Trichloroethene	5.0		**54.1**	50.00	0	108.3	52.50	3.08	11/17/2015
Trichlorofluoromethane	5.0		**52.2**	50.00	0	104.3	48.92	6.39	11/17/2015
Vinyl acetate	10.0		**53.9**	50.00	0	107.8	50.53	6.49	11/17/2015

Client: Trihydro Corporation

Client Project: Soil Vapor System

Work Order: 15110842

Report Date: 19-Nov-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114221 **SampType:** LCSD Units **µg/L** RPD Limit **40**

SampID: LCSD-R151117-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Vinyl chloride	2.0		**50.4**	50.00	0	100.9	47.32	6.36	11/17/2015
Surr: 1,2-Dichloroethane-d4			**47.5**	50.00		95.0			11/17/2015
Surr: 4-Bromofluorobenzene			**46.3**	50.00		92.6			11/17/2015
Surr: Dibromofluoromethane			**53.3**	50.00		106.5			11/17/2015
Surr: Toluene-d8			**47.2**	50.00		94.5			11/17/2015

Client: Trihydro Corporation **Work Order:** 15110842

Client Project: Soil Vapor System **Report Date:** 19-Nov-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114221 **SampType:** LCS Units µg/L

SampID: LCS-R151117-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1,2-Tetrachloroethane	5.0		**51.9**	50.00	0	103.8	81.9	115	11/17/2015
1,1,1-Trichloroethane	5.0		**53.1**	50.00	0	106.2	79.4	124	11/17/2015
1,1,2,2-Tetrachloroethane	5.0		**44.9**	50.00	0	89.8	74.7	116	11/17/2015
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0		**51.5**	50.00	0	103.0	72.9	121	11/17/2015
1,1,2-Trichloroethane	5.0		**48.7**	50.00	0	97.4	80.8	111	11/17/2015
1,1-Dichloro-2-propanone	50.0		**115**	125.0	0	91.8	66.3	130	11/17/2015
1,1-Dichloroethane	5.0		**49.0**	50.00	0	98.1	79.4	114	11/17/2015
1,1-Dichloroethene	5.0		**48.0**	50.00	0	96.1	74.1	117	11/17/2015
1,1-Dichloropropene	5.0		**51.1**	50.00	0	102.1	81.7	116	11/17/2015
1,2,3-Trichlorobenzene	5.0		**51.2**	50.00	0	102.5	79.7	118	11/17/2015
1,2,3-Trichloropropane	5.0		**44.8**	50.00	0	89.6	77.3	112	11/17/2015
1,2,3-Trimethylbenzene	5.0		**45.6**	50.00	0	91.2	79.9	119	11/17/2015
1,2,4-Trichlorobenzene	5.0		**48.8**	50.00	0	97.5	79.3	118	11/17/2015
1,2,4-Trimethylbenzene	5.0		**46.3**	50.00	0	92.5	78.7	115	11/17/2015
1,2-Dibromo-3-chloropropane	5.0		**43.3**	50.00	0	86.7	76	122	11/17/2015
1,2-Dibromoethane	5.0		**48.1**	50.00	0	96.2	80.8	114	11/17/2015
1,2-Dichlorobenzene	5.0		**47.2**	50.00	0	94.5	78.3	112	11/17/2015
1,2-Dichloroethane	5.0		**49.2**	50.00	0	98.3	70.6	118	11/17/2015
1,2-Dichloropropane	5.0		**50.4**	50.00	0	100.8	79.6	113	11/17/2015
1,3,5-Trimethylbenzene	5.0		**46.4**	50.00	0	92.7	77.5	115	11/17/2015
1,3-Dichlorobenzene	5.0		**48.0**	50.00	0	96.0	78.6	117	11/17/2015
1,3-Dichloropropane	5.0		**46.8**	50.00	0	93.5	78.8	112	11/17/2015
1,4-Dichlorobenzene	5.0		**47.5**	50.00	0	95.0	77.8	114	11/17/2015
1-Chlorobutane	5.0		**49.1**	50.00	0	98.3	78.6	115	11/17/2015
2,2-Dichloropropane	5.0		**50.7**	50.00	0	101.4	74.9	130	11/17/2015
2-Butanone	25.0		**111**	125.0	0	88.5	70.7	136	11/17/2015
2-Chloroethyl vinyl ether	20.0		**47.4**	50.00	0	94.8	52.5	145	11/17/2015
2-Chlorotoluene	5.0		**44.5**	50.00	0	89.0	77.4	114	11/17/2015
2-Hexanone	25.0		**101**	125.0	0	81.1	73.3	125	11/17/2015
2-Nitropropane	50.0		**542**	500.0	0	108.4	67.3	139	11/17/2015
4-Chlorotoluene	5.0		**45.2**	50.00	0	90.3	78.3	115	11/17/2015
4-Methyl-2-pentanone	25.0		**110**	125.0	0	87.8	76.3	122	11/17/2015
Acetone	25.0		**106**	125.0	0	84.9	56.4	147	11/17/2015
Acetonitrile	50.0		**457**	500.0	0	91.3	59.3	129	11/17/2015
Acrolein	100		**440**	500.0	0	88.0	1	201	11/17/2015
Acrylonitrile	5.0		**49.0**	50.00	0	98.1	74.1	128	11/17/2015
Allyl chloride	5.0		**51.0**	50.00	0	102.0	71.5	123	11/17/2015
Benzene	2.0		**51.5**	50.00	0	103.0	80	114	11/17/2015
Bromobenzene	5.0		**43.2**	50.00	0	86.4	73.2	118	11/17/2015
Bromochloromethane	5.0		**49.4**	50.00	0	98.9	73.3	121	11/17/2015
Bromodichloromethane	5.0		**53.0**	50.00	0	106.0	81.6	121	11/17/2015
Bromoform	5.0		**58.4**	50.00	0	116.9	83.1	127	11/17/2015
Bromomethane	10.0		**65.3**	50.00	0	130.6	44.4	154	11/17/2015
Carbon disulfide	5.0		**48.8**	50.00	0	97.6	73.2	118	11/17/2015
Carbon tetrachloride	5.0		**55.1**	50.00	0	110.1	79.4	130	11/17/2015
Chlorobenzene	5.0		**48.7**	50.00	0	97.4	81.4	110	11/17/2015
Chloroethane	10.0		**51.2**	50.00	0	102.3	52.1	137	11/17/2015

Client: Trihydro Corporation

Client Project: Soil Vapor System

Work Order: 15110842

Report Date: 19-Nov-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114221 **SampType:** LCS Units **µg/L**

SampID: LCS-R151117-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloroform	5.0		**50.5**	50.00	0	101.0	82.7	116	11/17/2015
Chloromethane	10.0		**46.9**	50.00	0	93.8	48.2	144	11/17/2015
Chloroprene	20.0		**44.6**	50.00	0	89.2	80.6	126	11/17/2015
cis-1,2-Dichloroethene	5.0		**48.7**	50.00	0	97.5	78.2	116	11/17/2015
cis-1,3-Dichloropropene	5.0		**55.0**	50.00	0	110.1	83	119	11/17/2015
cis-1,4-Dichloro-2-butene	5.0		**49.6**	50.00	0	99.2	60.7	137	11/17/2015
Cyclohexanone	50.0		**405**	500.0	0	81.0	54.2	145	11/17/2015
Dibromochloromethane	5.0		**54.9**	50.00	0	109.9	81.2	121	11/17/2015
Dibromomethane	5.0		**52.9**	50.00	0	105.8	78.3	118	11/17/2015
Dichlorodifluoromethane	10.0		**50.9**	50.00	0	101.8	20.6	154	11/17/2015
Ethyl acetate	10.0		**48.2**	50.00	0	96.3	73.1	116	11/17/2015
Ethyl ether	5.0		**47.7**	50.00	0	95.4	75.2	109	11/17/2015
Ethyl methacrylate	5.0		**45.9**	50.00	0	91.7	80.1	113	11/17/2015
Ethylbenzene	5.0		**47.8**	50.00	0	95.6	77.2	113	11/17/2015
Hexachlorobutadiene	5.0		**52.1**	50.00	0	104.2	77.3	123	11/17/2015
Hexachloroethane	10.0		**51.3**	50.00	0	102.6	74.6	117	11/17/2015
Iodomethane	5.0	S	**77.1**	50.00	0	154.2	61.3	140	11/17/2015
Isopropylbenzene	5.0		**49.3**	50.00	0	98.7	81.3	114	11/17/2015
m,p-Xylenes	5.0		**95.4**	100.0	0	95.4	79.6	113	11/17/2015
Methacrylonitrile	10.0		**49.2**	50.00	0	98.3	77.2	125	11/17/2015
Methyl Methacrylate	5.0		**46.6**	50.00	0	93.2	74.2	121	11/17/2015
Methyl tert-butyl ether	2.0		**56.2**	50.00	0	112.5	76.8	117	11/17/2015
Methylacrylate	10.0		**51.6**	50.00	0	103.3	78	124	11/17/2015
Methylene chloride	5.0		**45.4**	50.00	0	90.9	74.1	114	11/17/2015
Naphthalene	10.0		**47.9**	50.00	0	95.9	77.9	122	11/17/2015
n-Butyl acetate	25.0		**42.1**	50.00	0	84.2	74	120	11/17/2015
n-Butylbenzene	5.0		**44.7**	50.00	0	89.4	71.1	120	11/17/2015
n-Heptane	20.0		**50.0**	50.00	0	100.0	67.4	129	11/17/2015
n-Hexane	20.0		**47.5**	50.00	0	94.9	68.4	126	11/17/2015
Nitrobenzene	50.0		**719**	500.0	0	143.7	37.9	181	11/17/2015
n-Propylbenzene	5.0		**44.8**	50.00	0	89.6	74.6	118	11/17/2015
o-Xylene	5.0		**47.1**	50.00	0	94.1	80.1	111	11/17/2015
Pentachloroethane	20.0		**50.7**	50.00	0	101.3	78.8	117	11/17/2015
p-Isopropyltoluene	5.0		**47.8**	50.00	0	95.5	77.6	118	11/17/2015
Propionitrile	50.0		**505**	500.0	0	100.9	72.9	137	11/17/2015
sec-Butylbenzene	5.0		**46.6**	50.00	0	93.3	74.5	119	11/17/2015
Styrene	5.0		**48.8**	50.00	0	97.5	83.4	113	11/17/2015
tert-Butylbenzene	5.0		**43.7**	50.00	0	87.5	75.9	114	11/17/2015
Tetrachloroethene	5.0		**49.5**	50.00	0	99.0	72.5	125	11/17/2015
Tetrahydrofuran	20.0		**44.9**	50.00	0	89.8	69.6	125	11/17/2015
Toluene	5.0		**46.8**	50.00	0	93.6	77.5	113	11/17/2015
trans-1,2-Dichloroethene	5.0		**49.0**	50.00	0	97.9	79	114	11/17/2015
trans-1,3-Dichloropropene	5.0		**47.5**	50.00	0	95.0	78	115	11/17/2015
trans-1,4-Dichloro-2-butene	10.0		**42.5**	50.00	0	85.1	63.3	128	11/17/2015
Trichloroethene	5.0		**52.5**	50.00	0	105.0	84.4	114	11/17/2015
Trichlorofluoromethane	5.0		**48.9**	50.00	0	97.8	75.2	132	11/17/2015
Vinyl acetate	10.0		**50.5**	50.00	0	101.1	64.5	127	11/17/2015

Client: Trihydro Corporation **Work Order:** 15110842

Client Project: Soil Vapor System **Report Date:** 19-Nov-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114221 **SampType:** LCS Units **µg/L**

SampID: LCS-R151117-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Vinyl chloride	2.0		**47.3**	50.00	0	94.6	58	134	11/17/2015
Surr: 1,2-Dichloroethane-d4			**47.2**	50.00		94.4	74.7	129	11/17/2015
Surr: 4-Bromofluorobenzene			**46.2**	50.00		92.3	86	119	11/17/2015
Surr: Dibromofluoromethane			**53.1**	50.00		106.3	81.7	123	11/17/2015
Surr: Toluene-d8			**46.6**	50.00		93.2	84.1	114	11/17/2015

Batch 114221 **SampType:** MS Units **mg/L**

SampID: 15110847-001BMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1-Dichloroethene	0.500		**4.99**	5.000	0	99.8	61.3	123	11/17/2015
1,2-Dichloroethane	0.500		**4.90**	5.000	0	98.1	71.5	116	11/17/2015
1,4-Dichlorobenzene	0.500		**4.73**	5.000	0	94.6	76.9	113	11/17/2015
2-Butanone	2.50		**4.42**	5.000	0	88.5	64.1	132	11/17/2015
Benzene	0.200		**5.26**	5.000	0	105.2	81.5	113	11/17/2015
Carbon tetrachloride	0.500		**5.53**	5.000	0	110.6	55.5	125	11/17/2015
Chlorobenzene	0.500		**4.94**	5.000	0	98.9	81.8	111	11/17/2015
Chloroform	0.500		**4.97**	5.000	0	99.3	81	115	11/17/2015
Tetrachloroethene	0.500		**4.99**	5.000	0	99.8	61.7	114	11/17/2015
Trichloroethene	0.500		**5.40**	5.000	0	108.0	74.4	117	11/17/2015
Vinyl chloride	0.200		**4.99**	5.000	0	99.8	45.7	130	11/17/2015
Surr: 1,2-Dichloroethane-d4			**4.82**	5.000		96.4	74.7	129	11/17/2015
Surr: 4-Bromofluorobenzene			**4.59**	5.000		91.9	86	119	11/17/2015
Surr: Dibromofluoromethane			**5.31**	5.000		106.3	81.7	123	11/17/2015
Surr: Toluene-d8			**4.67**	5.000		93.4	84.3	114	11/17/2015

Batch 114221 **SampType:** MSD Units **mg/L** RPD Limit **20**

SampID: 15110847-001BMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1-Dichloroethene	0.500		**5.22**	5.000	0	104.4	4.989	4.51	11/17/2015
1,2-Dichloroethane	0.500		**5.18**	5.000	0	103.6	4.905	5.43	11/17/2015
1,4-Dichlorobenzene	0.500		**4.84**	5.000	0	96.8	4.732	2.30	11/17/2015
2-Butanone	2.50		**4.53**	5.000	0	90.6	4.425	2.32	11/17/2015
Benzene	0.200		**5.46**	5.000	0	109.2	5.261	3.75	11/17/2015
Carbon tetrachloride	0.500		**5.81**	5.000	0	116.1	5.530	4.87	11/17/2015
Chlorobenzene	0.500		**5.09**	5.000	0	101.9	4.945	2.97	11/17/2015
Chloroform	0.500		**5.17**	5.000	0	103.5	4.966	4.08	11/17/2015
Tetrachloroethene	0.500		**5.12**	5.000	0	102.3	4.989	2.51	11/17/2015
Trichloroethene	0.500		**5.62**	5.000	0	112.5	5.402	4.03	11/17/2015
Vinyl chloride	0.200		**5.24**	5.000	0	104.9	4.991	4.96	11/17/2015
Surr: 1,2-Dichloroethane-d4			**4.92**	5.000		98.5			11/17/2015
Surr: 4-Bromofluorobenzene			**4.60**	5.000		92.0			11/17/2015
Surr: Dibromofluoromethane			**5.39**	5.000		107.8			11/17/2015
Surr: Toluene-d8			**4.59**	5.000		91.8			11/17/2015

Client: Trihydro Corporation
Client Project: Soil Vapor System
Work Order: 15110842
Report Date: 19-Nov-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114221 **SampType:** MS Units µg/L
SampID: 15110959-002AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1-Dichloroethene	5.0		**47.2**	50.00	0	94.4	35.7	136	11/17/2015
Benzene	2.0		**53.7**	50.00	0	107.4	62.5	121	11/17/2015
Chlorobenzene	5.0		**49.2**	50.00	0	98.4	78.6	114	11/17/2015
Ethylbenzene	5.0		**49.9**	50.00	0	99.8	74.4	130	11/17/2015
m,p-Xylenes	5.0		**49.0**	50.00	0	98.1	70.5	126	11/17/2015
o-Xylene	5.0		**46.8**	50.00	0	93.5	71.2	124	11/17/2015
Toluene	5.0		**47.0**	50.00	0	93.9	69.5	118	11/17/2015
Trichloroethene	5.0		**56.5**	50.00	0	113.1	69.4	117	11/17/2015
Surr: 1,2-Dichloroethane-d4			**48.9**	50.00		97.8	74.7	129	11/17/2015
Surr: 4-Bromofluorobenzene			**46.6**	50.00		93.2	86	119	11/17/2015
Surr: Dibromofluoromethane			**52.1**	50.00		104.2	81.7	123	11/17/2015
Surr: Toluene-d8			**45.9**	50.00		91.9	84.3	114	11/17/2015

Batch 114221 **SampType:** MSD Units µg/L RPD Limit **20**
SampID: 15110959-002AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1-Dichloroethene	5.0		**43.8**	50.00	0	87.6	47.22	7.49	11/17/2015
Benzene	2.0		**49.5**	50.00	0	98.9	53.72	8.24	11/17/2015
Chlorobenzene	5.0		**46.5**	50.00	0	93.1	49.19	5.56	11/17/2015
Ethylbenzene	5.0		**47.5**	50.00	0	95.0	49.92	4.97	11/17/2015
m,p-Xylenes	5.0		**46.5**	50.00	0	93.1	49.05	5.27	11/17/2015
o-Xylene	5.0		**44.4**	50.00	0	88.7	46.75	5.27	11/17/2015
Toluene	5.0		**44.6**	50.00	0	89.1	46.95	5.22	11/17/2015
Trichloroethene	5.0		**53.0**	50.00	0	106.0	56.53	6.45	11/17/2015
Surr: 1,2-Dichloroethane-d4			**48.8**	50.00		97.6			11/17/2015
Surr: 4-Bromofluorobenzene			**46.6**	50.00		93.2			11/17/2015
Surr: Dibromofluoromethane			**53.2**	50.00		106.4			11/17/2015
Surr: Toluene-d8			**46.3**	50.00		92.6			11/17/2015

Teklab Inc. Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Trihydro Corporation

Work Order: 15110842

Client Project: Soil Vapor System

Report Date: 19-Nov-15

Carrier: Nick Harvey

Received By: KF

Completed by: Kalyn Foecke
On: 16-Nov-15
Kalyn Foecke

Reviewed by: Elizabeth A. Hurley
On: 16-Nov-15
Elizabeth A. Hurley

Pages to follow: Chain of custody 1 Extra pages included 0

Shipping container/cooler in good condition?	Yes	☑	No	☐	Not Present	☐	Temp °C	9.62
Type of thermal preservation?	None	☐	Ice	☑	Blue Ice	☐	Dry Ice	☐
Chain of custody present?	Yes	☑	No	☐				
Chain of custody signed when relinquished and received?	Yes	☑	No	☐				
Chain of custody agrees with sample labels?	Yes	☑	No	☐				
Samples in proper container/bottle?	Yes	☑	No	☐				
Sample containers intact?	Yes	☑	No	☐				
Sufficient sample volume for indicated test?	Yes	☑	No	☐				
All samples received within holding time?	Yes	☑	No	☐				
Reported field parameters measured:	Field	☐	Lab	☐	NA	☑		
Container/Temp Blank temperature in compliance?	Yes	☑	No	☐				

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes	☑	No	☐	No VOA vials	☐		
Water - TOX containers have zero headspace?	Yes	☐	No	☐	No TOX containers	☑		
Water - pH acceptable upon receipt?	Yes	☑	No	☐	NA	☐		
NPDES/CWA TCN interferences checked/treated in the field?	Yes	☐	No	☐	NA	☑		

Any No responses must be detailed below or on the COC.

CHAIN OF CUSTODY

pg. ____ of ____ Work Order # 15110842

TEKLAB, INC. 5445 Horseshoe Lake Road ~ Collinsville, IL 62234 ~ Phone: (618) 344-1004 ~ Fax: (618) 344-1005

Client: Trihydro
Address: 1252 Commerce Drive
City / State / Zip: Laramie, WY 82070
Contact: Todd Aseltyne Phone: 513 4297470
E-Mail: Taseltyne@trihydro.com Fax:

Samples on: ☒ Ice ☐ Blue Ice ☐ No Ice 9.62 °C
Preserved in: ☐ Lab ☒ Field FOR LAB USE ONLY
Lab Notes:
no headspace 3 DAY
Comments:
Teklab, Inc. Courier Pick Up

- Are these samples known to be involved in litigation? If yes, a surcharge will apply. ☐ Yes ☐ No
- Are these samples known to be hazardous? ☐ Yes ☐ No
- Are there any required reporting limits to be met on the requested analysis? If yes, please provide limits in comment section. ☐ Yes ☐ No

Project Name / Number: Soil Vapor System
Sample Collector's Name: Todd Hanford

Results Requested: ☐ Standard ☐ 1-2 Day (100% Surcharge) ☐ Other ______ ☒ 3 Day (50% Surcharge)

Billing Instructions:

Lab Use Only	Sample Identification	Date/Time Sampled	UNPRES	HNO_3	NaOH	H_2SO_4	HCL	MeOH	$NaHSO_4$	Other	Water	Drinking Water	Soil	Sludge	Sp. Waste	VOC	Flash	lead	PNA
15110842-001	Tank 3	11/16/15 0830														X	X	X	X

Relinquished By	Date / Time	Received By	Date / Time
Todd Hanford	11/16/15 9:45	[signature]	11/16/15 945
[signature]	11/16/15 11:20	Kalyn Foeche	11/16/15 1120

The individual signing this agreement on behalf of client acknowledges that he/she has read and understands the terms and conditions of this agreement, on the reverse side, and that he/she has the authority to sign on behalf of client.

WHITE & YELLOW – LAB PINK – SAMPLER'S COPY

December 15, 2015

Todd Aseltyne
Trihydro Corporation
1252 Commerce Drive
Laramie, WY 82070
TEL: (513) 429-7470
FAX:

RE: Soil Vapor System

WorkOrder: 15120758

Dear Todd Aseltyne:

TEKLAB, INC received 1 sample on 12/10/2015 11:00:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Elizabeth A. Hurley

Elizabeth A. Hurley
Project Manager
(618)344-1004 ex 33
ehurley@teklabinc.com

Teklab, Inc. Environmental Laboratory

Report Contents

http://www.teklabinc.com/

Client: Trihydro Corporation

Client Project: Soil Vapor System

Work Order: 15120758

Report Date: 15-Dec-15

This reporting package includes the following:

Abbr Definition

Abbr	Definition
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
DNI	Did not ignite
DUP	Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

# - Unknown hydrocarbon	B - Analyte detected in associated Method Blank
E - Value above quantitation range	H - Holding times exceeded
I - Associated internal standard was outside method criteria	J - Analyte detected below quantitation limits
M - Manual Integration used to determine area response	ND - Not Detected at the Reporting Limit
R - RPD outside accepted recovery limits	S - Spike Recovery outside recovery limits
T - TIC(Tentatively identified compound)	X - Value exceeds Maximum Contaminant Level

Case Narrative

http://www.teklabinc.com/

Client: Trihydro Corporation
Client Project: Soil Vapor System

Work Order: 15120758
Report Date: 15-Dec-15

Cooler Receipt Temp: 4.22 °C

Locations and Accreditations

	Collinsville	Springfield	Kansas City	Collinsville Air
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425	3920 Pintail Dr Springfield, IL 62711-9415	8421 Nieman Road Lenexa, KS 66214	5445 Horseshoe Lake Road Collinsville, IL 62234-7425
Phone	(618) 344-1004	(217) 698-1004	(913) 541-1998	(618) 344-1004
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Email	jhriley@teklabinc.com	KKlostermann@teklabinc.com	dthompson@teklabinc.com	EHurley@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2016	Collinsville
Kansas	KDHE	E-10374	NELAP	1/31/2016	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2016	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2016	Collinsville
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2016	Collinsville
Arkansas	ADEQ	88-0966		3/14/2016	Collinsville
Illinois	IDPH	17584		5/31/2017	Collinsville
Kentucky	KDEP	98006		12/31/2015	Collinsville
Kentucky	UST	0073		1/31/2016	Collinsville
Missouri	MDNR	00930		5/31/2017	Collinsville
Oklahoma	ODEQ	9978		8/31/2016	Collinsville

Laboratory Results

http://www.teklabinc.com/

Client: Trihydro Corporation **Work Order:** 15120758
Client Project: Soil Vapor System **Report Date:** 15-Dec-15
Lab ID: 15120758-001 **Client Sample ID:** Tank 3
Matrix: AQUEOUS **Collection Date:** 12/10/2015 9:00

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1020B								
Ignitability, Closed Cup	NELAP	60		**>200**	°F	1	12/14/2015 9:48	R212634
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Lead	NELAP	0.0150		**0.0196**	mg/L	1	12/14/2015 15:08	114854
SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1-Methylnaphthalene		0.00050		**ND**	mg/L	5	12/15/2015 1:56	114830
Acenaphthene	NELAP	0.00050		**ND**	mg/L	5	12/15/2015 1:56	114830
Acenaphthylene	NELAP	0.00050		**ND**	mg/L	5	12/15/2015 1:56	114830
Anthracene	NELAP	0.00050		**ND**	mg/L	5	12/15/2015 1:56	114830
Benzo(a)anthracene	NELAP	0.00050		**ND**	mg/L	5	12/15/2015 1:56	114830
Benzo(a)pyrene	NELAP	0.00050		**ND**	mg/L	5	12/15/2015 1:56	114830
Benzo(b)fluoranthene	NELAP	0.00050		**ND**	mg/L	5	12/15/2015 1:56	114830
Benzo(g,h,i)perylene	NELAP	0.00050		**ND**	mg/L	5	12/15/2015 1:56	114830
Benzo(k)fluoranthene	NELAP	0.00050		**ND**	mg/L	5	12/15/2015 1:56	114830
Chrysene	NELAP	0.00050		**ND**	mg/L	5	12/15/2015 1:56	114830
Dibenzo(a,h)anthracene	NELAP	0.00050		**ND**	mg/L	5	12/15/2015 1:56	114830
Fluoranthene	NELAP	0.00050		**ND**	mg/L	5	12/15/2015 1:56	114830
Fluorene	NELAP	0.00050		**ND**	mg/L	5	12/15/2015 1:56	114830
Indeno(1,2,3-cd)pyrene	NELAP	0.00050		**ND**	mg/L	5	12/15/2015 1:56	114830
Naphthalene	NELAP	0.00050		**ND**	mg/L	5	12/15/2015 1:56	114830
Phenanthrene	NELAP	0.00050		**ND**	mg/L	5	12/15/2015 1:56	114830
Pyrene	NELAP	0.00050		**0.00140**	mg/L	5	12/15/2015 1:56	114830
Surr: 2-Fluorobiphenyl		10-143		**55.0**	%REC	5	12/15/2015 1:56	114830
Surr: Nitrobenzene-d5		10-166		**48.5**	%REC	5	12/15/2015 1:56	114830
Surr: p-Terphenyl-d14		10-137		**50.0**	%REC	5	12/15/2015 1:56	114830
Elevated reporting limit due to sample extract composition.								
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
1,1,1-Trichloroethane	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
1,1,2,2-Tetrachloroethane	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
1,1,2-Trichloro-1,2,2-trifluoroethane		20.0		**ND**	µg/L	1	12/14/2015 18:01	114912
1,1,2-Trichloroethane	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
1,1-Dichloro-2-propanone		50.0		**ND**	µg/L	1	12/14/2015 18:01	114912
1,1-Dichloroethane	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
1,1-Dichloroethene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
1,1-Dichloropropene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
1,2,3-Trichlorobenzene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
1,2,3-Trichloropropane	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
1,2,3-Trimethylbenzene		5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
1,2,4-Trichlorobenzene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
1,2,4-Trimethylbenzene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
1,2-Dibromo-3-chloropropane	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
1,2-Dibromoethane	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
1,2-Dichlorobenzene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
1,2-Dichloroethane	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
1,2-Dichloropropane	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
1,3,5-Trimethylbenzene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
1,3-Dichlorobenzene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912

Client: Trihydro Corporation **Work Order:** 15120758

Client Project: Soil Vapor System **Report Date:** 15-Dec-15

Lab ID: 15120758-001 **Client Sample ID:** Tank 3

Matrix: AQUEOUS **Collection Date:** 12/10/2015 9:00

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,3-Dichloropropane	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
1,4-Dichlorobenzene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
1-Chlorobutane	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
2,2-Dichloropropane	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
2-Butanone	NELAP	25.0		**ND**	µg/L	1	12/14/2015 18:01	114912
2-Chloroethyl vinyl ether	NELAP	20.0		**ND**	µg/L	1	12/14/2015 18:01	114912
2-Chlorotoluene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
2-Hexanone	NELAP	25.0		**ND**	µg/L	1	12/14/2015 18:01	114912
2-Nitropropane	NELAP	50.0		**ND**	µg/L	1	12/14/2015 18:01	114912
4-Chlorotoluene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
4-Methyl-2-pentanone	NELAP	25.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Acetone	NELAP	25.0	J	**5.1**	µg/L	1	12/14/2015 18:01	114912
Acetonitrile	NELAP	50.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Acrolein	NELAP	100		**ND**	µg/L	1	12/14/2015 18:01	114912
Acrylonitrile	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Allyl chloride	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Benzene	NELAP	2.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Bromobenzene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Bromochloromethane	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Bromodichloromethane	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Bromoform	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Bromomethane	NELAP	10.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Carbon disulfide	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Carbon tetrachloride	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Chlorobenzene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Chloroethane	NELAP	10.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Chloroform	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Chloromethane	NELAP	10.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Chloroprene	NELAP	20.0		**ND**	µg/L	1	12/14/2015 18:01	114912
cis-1,2-Dichloroethene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
cis-1,3-Dichloropropene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
cis-1,4-Dichloro-2-butene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Cyclohexanone		50.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Dibromochloromethane	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Dibromomethane	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Dichlorodifluoromethane	NELAP	10.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Ethyl acetate	NELAP	10.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Ethyl ether	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Ethyl methacrylate	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Ethylbenzene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Hexachlorobutadiene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Hexachloroethane	NELAP	10.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Iodomethane	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Isopropylbenzene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
m,p-Xylenes	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Methacrylonitrile	NELAP	10.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Methyl Methacrylate	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912

Client: Trihydro Corporation **Work Order:** 15120758

Client Project: Soil Vapor System **Report Date:** 15-Dec-15

Lab ID: 15120758-001 **Client Sample ID:** Tank 3

Matrix: AQUEOUS **Collection Date:** 12/10/2015 9:00

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Methyl tert-butyl ether	NELAP	2.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Methylacrylate	NELAP	10.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Methylene chloride	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Naphthalene	NELAP	10.0		**ND**	µg/L	1	12/14/2015 18:01	114912
n-Butyl acetate		25.0		**ND**	µg/L	1	12/14/2015 18:01	114912
n-Butylbenzene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
n-Heptane		20.0		**ND**	µg/L	1	12/14/2015 18:01	114912
n-Hexane		20.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Nitrobenzene	NELAP	50.0		**ND**	µg/L	1	12/14/2015 18:01	114912
n-Propylbenzene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
o-Xylene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Pentachloroethane	NELAP	20.0		**ND**	µg/L	1	12/14/2015 18:01	114912
p-Isopropyltoluene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Propionitrile	NELAP	50.0		**ND**	µg/L	1	12/14/2015 18:01	114912
sec-Butylbenzene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Styrene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
tert-Butylbenzene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Tetrachloroethene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Tetrahydrofuran	NELAP	20.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Toluene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
trans-1,2-Dichloroethene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
trans-1,3-Dichloropropene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
trans-1,4-Dichloro-2-butene	NELAP	10.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Trichloroethene	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Trichlorofluoromethane	NELAP	5.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Vinyl acetate	NELAP	10.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Vinyl chloride	NELAP	2.0		**ND**	µg/L	1	12/14/2015 18:01	114912
Surr: 1,2-Dichloroethane-d4		74.7-129		**95.8**	%REC	1	12/14/2015 18:01	114912
Surr: 4-Bromofluorobenzene		86-119		**97.0**	%REC	1	12/14/2015 18:01	114912
Surr: Dibromofluoromethane		81.7-123		**101.8**	%REC	1	12/14/2015 18:01	114912
Surr: Toluene-d8		84.3-114		**93.0**	%REC	1	12/14/2015 18:01	114912

Teklab, Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Trihydro Corporation
Client Project: Soil Vapor System

Work Order: 15120758
Report Date: 15-Dec-15

SW-846 1020B

Batch R212634 **SampType:** LCS Units **°F**
SampID: LCS-R212634

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ignitability, Closed Cup	60		**83**	81.00	0	102.5	97	103	12/14/2015

Batch R212634 **SampType:** DUP Units **°F** RPD Limit **5**
SampID: 15120774-001BDUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ignitability, Closed Cup	60		**64**				66.00	3.08	12/14/2015

SW-846 3005A, 6010B, METALS BY ICP (TOTAL)

Batch 114854 **SampType:** MBLK Units **mg/L**
SampID: MBLK-114854

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	0.0150		**< 0.0150**	0.01500	0	0	-100	100	12/14/2015

Batch 114854 **SampType:** LCS Units **mg/L**
SampID: LCS-114854

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	0.0150		**0.508**	0.5000	0	101.5	85	115	12/14/2015

SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114830 **SampType:** MBLK Units **mg/L**
SampID: MBLK-114830

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1-Methylnaphthalene	0.00010		**ND**						12/14/2015
Acenaphthene	0.00010		**ND**						12/14/2015
Acenaphthylene	0.00010		**ND**						12/14/2015
Anthracene	0.00010		**ND**						12/14/2015
Benzo(a)anthracene	0.00010		**ND**						12/14/2015
Benzo(a)pyrene	0.00010		**ND**						12/14/2015
Benzo(b)fluoranthene	0.00010		**ND**						12/14/2015
Benzo(g,h,i)perylene	0.00010		**ND**						12/14/2015
Benzo(k)fluoranthene	0.00010		**ND**						12/14/2015
Chrysene	0.00010		**ND**						12/14/2015
Dibenzo(a,h)anthracene	0.00010		**ND**						12/14/2015
Fluoranthene	0.00010		**ND**						12/14/2015
Fluorene	0.00010		**ND**						12/14/2015
Indeno(1,2,3-cd)pyrene	0.00010		**ND**						12/14/2015
Naphthalene	0.00010		**ND**						12/14/2015
Phenanthrene	0.00010		**ND**						12/14/2015
Pyrene	0.00010		**ND**						12/14/2015
Surr: 2-Fluorobiphenyl			**0.00281**	0.005000		56.2	44.4	89.6	12/14/2015
Surr: Nitrobenzene-d5			**0.00260**	0.005000		52.0	40.9	81.4	12/14/2015
Surr: p-Terphenyl-d14			**0.00393**	0.005000		78.6	54.3	104	12/14/2015

Teklab, Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Trihydro Corporation

Client Project: Soil Vapor System

Work Order: 15120758

Report Date: 15-Dec-15

SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114830 **SampType:** LCS Units **mg/L**

SampID: LCS-114830

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1-Methylnaphthalene	0.00010		**0.00334**	).00500(	0	66.8	44.3	94.9	12/14/2015
Acenaphthene	0.00010		**0.00349**	).00500(	0	69.8	50.1	94.9	12/14/2015
Acenaphthylene	0.00010		**0.00345**	).00500(	0	69.0	50.6	96.9	12/14/2015
Anthracene	0.00010		**0.00363**	).00500(	0	72.6	53.5	94.3	12/14/2015
Benzo(a)anthracene	0.00010		**0.00358**	).00500(	0	71.6	48.3	104	12/14/2015
Benzo(a)pyrene	0.00010		**0.00384**	).00500(	0	76.8	52	103	12/14/2015
Benzo(b)fluoranthene	0.00010		**0.00384**	).00500(	0	76.8	55.3	98.4	12/14/2015
Benzo(g,h,i)perylene	0.00010		**0.00365**	).00500(	0	73.0	51.1	104	12/14/2015
Benzo(k)fluoranthene	0.00010		**0.00387**	).00500(	0	77.4	56.1	99.3	12/14/2015
Chrysene	0.00010		**0.00370**	).00500(	0	74.0	54.3	99.4	12/14/2015
Dibenzo(a,h)anthracene	0.00010		**0.00369**	).00500(	0	73.8	53.7	104	12/14/2015
Fluoranthene	0.00010		**0.00390**	).00500(	0	78.0	56.8	96.9	12/14/2015
Fluorene	0.00010		**0.00357**	).00500(	0	71.4	53.6	97	12/14/2015
Indeno(1,2,3-cd)pyrene	0.00010		**0.00368**	).00500(	0	73.6	53.4	103	12/14/2015
Naphthalene	0.00010		**0.00325**	).00500(	0	65.0	43.4	95	12/14/2015
Phenanthrene	0.00010		**0.00356**	).00500(	0	71.2	53.8	94.2	12/14/2015
Pyrene	0.00010		**0.00387**	).00500(	0	77.4	56.1	97.1	12/14/2015
Surr: 2-Fluorobiphenyl			**0.00314**	).00500(		62.8	44.4	89.6	12/14/2015
Surr: Nitrobenzene-d5			**0.00326**	).00500(		65.2	40.9	81.4	12/14/2015
Surr: p-Terphenyl-d14			**0.00418**	).00500(		83.6	54.3	104	12/14/2015

Batch 114830 **SampType:** LCSD Units **mg/L** RPD Limit **40**

SampID: LCSD-114830

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1-Methylnaphthalene	0.00010		**0.00299**	).00500(	0	59.8	0.003340	11.06	12/14/2015
Acenaphthene	0.00010		**0.00325**	).00500(	0	65.0	0.003490	7.12	12/14/2015
Acenaphthylene	0.00010		**0.00325**	).00500(	0	65.0	0.003450	5.97	12/14/2015
Anthracene	0.00010		**0.00349**	).00500(	0	69.8	0.003630	3.93	12/14/2015
Benzo(a)anthracene	0.00010		**0.00349**	).00500(	0	69.8	0.003580	2.55	12/14/2015
Benzo(a)pyrene	0.00010		**0.00375**	).00500(	0	75.0	0.003840	2.37	12/14/2015
Benzo(b)fluoranthene	0.00010		**0.00375**	).00500(	0	75.0	0.003840	2.37	12/14/2015
Benzo(g,h,i)perylene	0.00010		**0.00355**	).00500(	0	71.0	0.003650	2.78	12/14/2015
Benzo(k)fluoranthene	0.00010		**0.00381**	).00500(	0	76.2	0.003870	1.56	12/14/2015
Chrysene	0.00010		**0.00356**	).00500(	0	71.2	0.003700	3.86	12/14/2015
Dibenzo(a,h)anthracene	0.00010		**0.00363**	).00500(	0	72.6	0.003690	1.64	12/14/2015
Fluoranthene	0.00010		**0.00376**	).00500(	0	75.2	0.003900	3.66	12/14/2015
Fluorene	0.00010		**0.00344**	).00500(	0	68.8	0.003570	3.71	12/14/2015
Indeno(1,2,3-cd)pyrene	0.00010		**0.00362**	).00500(	0	72.4	0.003680	1.64	12/14/2015
Naphthalene	0.00010		**0.00299**	).00500(	0	59.8	0.003250	8.33	12/14/2015
Phenanthrene	0.00010		**0.00339**	).00500(	0	67.8	0.003560	4.89	12/14/2015
Pyrene	0.00010		**0.00372**	).00500(	0	74.4	0.003870	3.95	12/14/2015
Surr: 2-Fluorobiphenyl			**0.00292**	).00500(		58.4			12/14/2015
Surr: Nitrobenzene-d5			**0.00300**	).00500(		60.0			12/14/2015
Surr: p-Terphenyl-d14			**0.00416**	).00500(		83.2			12/14/2015

Client: Trihydro Corporation **Work Order:** 15120758

Client Project: Soil Vapor System **Report Date:** 15-Dec-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114912 **SampType:** MBLK Units µg/L

SampID: MBLK-N151214-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1,2-Tetrachloroethane	5.0		ND						12/14/2015
1,1,1-Trichloroethane	5.0		ND						12/14/2015
1,1,2,2-Tetrachloroethane	5.0		ND						12/14/2015
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0		ND						12/14/2015
1,1,2-Trichloroethane	5.0		ND						12/14/2015
1,1-Dichloro-2-propanone	50.0		ND						12/14/2015
1,1-Dichloroethane	5.0		ND						12/14/2015
1,1-Dichloroethene	5.0		ND						12/14/2015
1,1-Dichloropropene	5.0		ND						12/14/2015
1,2,3-Trichlorobenzene	5.0		ND						12/14/2015
1,2,3-Trichloropropane	5.0		ND						12/14/2015
1,2,3-Trimethylbenzene	5.0		ND						12/14/2015
1,2,4-Trichlorobenzene	5.0		ND						12/14/2015
1,2,4-Trimethylbenzene	5.0		ND						12/14/2015
1,2-Dibromo-3-chloropropane	5.0		ND						12/14/2015
1,2-Dibromoethane	5.0		ND						12/14/2015
1,2-Dichlorobenzene	5.0		ND						12/14/2015
1,2-Dichloroethane	5.0		ND						12/14/2015
1,2-Dichloropropane	5.0		ND						12/14/2015
1,3,5-Trimethylbenzene	5.0		ND						12/14/2015
1,3-Dichlorobenzene	5.0		ND						12/14/2015
1,3-Dichloropropane	5.0		ND						12/14/2015
1,4-Dichlorobenzene	5.0		ND						12/14/2015
1-Chlorobutane	5.0		ND						12/14/2015
2,2-Dichloropropane	5.0		ND						12/14/2015
2-Butanone	25.0		ND						12/14/2015
2-Chloroethyl vinyl ether	20.0		ND						12/14/2015
2-Chlorotoluene	5.0		ND						12/14/2015
2-Hexanone	25.0		ND						12/14/2015
2-Nitropropane	50.0		ND						12/14/2015
4-Chlorotoluene	5.0		ND						12/14/2015
4-Methyl-2-pentanone	25.0		ND						12/14/2015
Acetone	25.0		ND						12/14/2015
Acetonitrile	50.0		ND						12/14/2015
Acrolein	100		ND						12/14/2015
Acrylonitrile	5.0		ND						12/14/2015
Allyl chloride	5.0		ND						12/14/2015
Benzene	2.0	J	1.0						12/14/2015
Bromobenzene	5.0		ND						12/14/2015
Bromochloromethane	5.0		ND						12/14/2015
Bromodichloromethane	5.0		ND						12/14/2015
Bromoform	5.0		ND						12/14/2015
Bromomethane	10.0		ND						12/14/2015
Carbon disulfide	5.0		ND						12/14/2015
Carbon tetrachloride	5.0		ND						12/14/2015
Chlorobenzene	5.0		ND						12/14/2015
Chloroethane	10.0		ND						12/14/2015

Client: Trihydro Corporation

Client Project: Soil Vapor System

Work Order: 15120758

Report Date: 15-Dec-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114912 **SampType:** MBLK Units **µg/L**

SampID: MBLK-N151214-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloroform	5.0		**ND**						12/14/2015
Chloromethane	10.0		**ND**						12/14/2015
Chloroprene	20.0		**ND**						12/14/2015
cis-1,2-Dichloroethene	5.0		**ND**						12/14/2015
cis-1,3-Dichloropropene	5.0		**ND**						12/14/2015
cis-1,4-Dichloro-2-butene	5.0		**ND**						12/14/2015
Cyclohexanone	50.0		**ND**						12/14/2015
Dibromochloromethane	5.0		**ND**						12/14/2015
Dibromomethane	5.0		**ND**						12/14/2015
Dichlorodifluoromethane	10.0		**ND**						12/14/2015
Ethyl acetate	10.0		**ND**						12/14/2015
Ethyl ether	5.0		**ND**						12/14/2015
Ethyl methacrylate	5.0		**ND**						12/14/2015
Ethylbenzene	5.0		**ND**						12/14/2015
Hexachlorobutadiene	5.0		**ND**						12/14/2015
Hexachloroethane	10.0		**ND**						12/14/2015
Iodomethane	5.0		**ND**						12/14/2015
Isopropylbenzene	5.0		**ND**						12/14/2015
m,p-Xylenes	5.0		**ND**						12/14/2015
Methacrylonitrile	10.0		**ND**						12/14/2015
Methyl Methacrylate	5.0		**ND**						12/14/2015
Methyl tert-butyl ether	2.0		**ND**						12/14/2015
Methylacrylate	10.0		**ND**						12/14/2015
Methylene chloride	5.0		**ND**						12/14/2015
Naphthalene	10.0		**ND**						12/14/2015
n-Butyl acetate	25.0		**ND**						12/14/2015
n-Butylbenzene	5.0		**ND**						12/14/2015
n-Heptane	20.0		**ND**						12/14/2015
n-Hexane	20.0		**ND**						12/14/2015
Nitrobenzene	50.0		**ND**						12/14/2015
n-Propylbenzene	5.0		**ND**						12/14/2015
o-Xylene	5.0		**ND**						12/14/2015
Pentachloroethane	20.0		**ND**						12/14/2015
p-Isopropyltoluene	5.0		**ND**						12/14/2015
Propionitrile	50.0		**ND**						12/14/2015
sec-Butylbenzene	5.0		**ND**						12/14/2015
Styrene	5.0		**ND**						12/14/2015
tert-Butylbenzene	5.0		**ND**						12/14/2015
Tetrachloroethene	5.0		**ND**						12/14/2015
Tetrahydrofuran	20.0		**ND**						12/14/2015
Toluene	5.0		**ND**						12/14/2015
trans-1,2-Dichloroethene	5.0		**ND**						12/14/2015
trans-1,3-Dichloropropene	5.0		**ND**						12/14/2015
trans-1,4-Dichloro-2-butene	10.0		**ND**						12/14/2015
Trichloroethene	5.0		**ND**						12/14/2015
Trichlorofluoromethane	5.0		**ND**						12/14/2015
Vinyl acetate	10.0		**ND**						12/14/2015

Client: Trihydro Corporation

Client Project: Soil Vapor System

Work Order: 15120758

Report Date: 15-Dec-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch **114912** **SampType:** **MBLK** Units **µg/L**

SampID: MBLK-N151214-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Vinyl chloride	2.0		**ND**						12/14/2015
Surr: 1,2-Dichloroethane-d4			**48.8**	50.00		97.5	74.7	129	12/14/2015
Surr: 4-Bromofluorobenzene			**47.3**	50.00		94.5	86	119	12/14/2015
Surr: Dibromofluoromethane			**52.5**	50.00		105.0	81.7	123	12/14/2015
Surr: Toluene-d8			**43.6**	50.00		87.2	84.3	114	12/14/2015

Client: Trihydro Corporation **Work Order:** 15120758

Client Project: Soil Vapor System **Report Date:** 15-Dec-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114912 **SampType:** LCS Units **µg/L**

SampID: LCS-N151214-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1,2-Tetrachloroethane	5.0		**47.7**	50.00	0	95.4	81.9	115	12/14/2015
1,1,1-Trichloroethane	5.0		**49.0**	50.00	0	97.9	79.4	124	12/14/2015
1,1,2,2-Tetrachloroethane	5.0		**41.3**	50.00	0	82.6	74.7	116	12/14/2015
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0		**48.9**	50.00	0	97.7	72.9	121	12/14/2015
1,1,2-Trichloroethane	5.0		**44.1**	50.00	0	88.2	80.8	111	12/14/2015
1,1-Dichloro-2-propanone	50.0		**100**	125.0	0	80.1	66.3	130	12/14/2015
1,1-Dichloroethane	5.0		**47.4**	50.00	0	94.8	79.4	114	12/14/2015
1,1-Dichloroethene	5.0		**47.6**	50.00	0	95.1	74.1	117	12/14/2015
1,1-Dichloropropene	5.0		**49.8**	50.00	0	99.5	81.7	116	12/14/2015
1,2,3-Trichlorobenzene	5.0		**49.0**	50.00	0	98.0	79.7	118	12/14/2015
1,2,3-Trichloropropane	5.0		**43.8**	50.00	0	87.6	77.3	112	12/14/2015
1,2,3-Trimethylbenzene	5.0		**41.3**	50.00	0	82.6	79.9	119	12/14/2015
1,2,4-Trichlorobenzene	5.0		**48.1**	50.00	0	96.2	79.3	118	12/14/2015
1,2,4-Trimethylbenzene	5.0		**44.6**	50.00	0	89.2	78.7	115	12/14/2015
1,2-Dibromo-3-chloropropane	5.0		**42.7**	50.00	0	85.4	76	122	12/14/2015
1,2-Dibromoethane	5.0		**46.6**	50.00	0	93.1	80.8	114	12/14/2015
1,2-Dichlorobenzene	5.0		**45.0**	50.00	0	90.0	78.3	112	12/14/2015
1,2-Dichloroethane	5.0		**45.6**	50.00	0	91.2	70.6	118	12/14/2015
1,2-Dichloropropane	5.0		**48.5**	50.00	0	97.0	79.6	113	12/14/2015
1,3,5-Trimethylbenzene	5.0		**44.8**	50.00	0	89.5	77.5	115	12/14/2015
1,3-Dichlorobenzene	5.0		**45.1**	50.00	0	90.2	78.6	117	12/14/2015
1,3-Dichloropropane	5.0		**42.7**	50.00	0	85.4	78.8	112	12/14/2015
1,4-Dichlorobenzene	5.0		**44.1**	50.00	0	88.2	77.8	114	12/14/2015
1-Chlorobutane	5.0		**46.2**	50.00	0	92.5	78.6	115	12/14/2015
2,2-Dichloropropane	5.0		**48.6**	50.00	0	97.3	74.9	130	12/14/2015
2-Butanone	25.0		**145**	125.0	0	116.1	70.7	136	12/14/2015
2-Chloroethyl vinyl ether	20.0		**55.0**	50.00	0	110.0	52.5	145	12/14/2015
2-Chlorotoluene	5.0		**41.0**	50.00	0	82.1	77.4	114	12/14/2015
2-Hexanone	25.0		**108**	125.0	0	86.0	73.3	125	12/14/2015
2-Nitropropane	50.0		**505**	500.0	0	101.1	67.3	139	12/14/2015
4-Chlorotoluene	5.0		**41.5**	50.00	0	83.0	78.3	115	12/14/2015
4-Methyl-2-pentanone	25.0		**109**	125.0	0	86.8	76.3	122	12/14/2015
Acetone	25.0		**174**	125.0	0	138.8	56.4	147	12/14/2015
Acetonitrile	50.0		**535**	500.0	0	107.0	59.3	129	12/14/2015
Acrolein	100		**321**	500.0	0	64.2	1	201	12/14/2015
Acrylonitrile	5.0		**49.0**	50.00	0	98.1	74.1	128	12/14/2015
Allyl chloride	5.0		**52.6**	50.00	0	105.2	71.5	123	12/14/2015
Benzene	2.0		**49.9**	50.00	0	99.8	80	114	12/14/2015
Bromobenzene	5.0		**40.7**	50.00	0	81.5	73.2	118	12/14/2015
Bromochloromethane	5.0		**47.2**	50.00	0	94.3	73.3	121	12/14/2015
Bromodichloromethane	5.0		**50.0**	50.00	0	100.0	81.6	121	12/14/2015
Bromoform	5.0		**50.9**	50.00	0	101.8	83.1	127	12/14/2015
Bromomethane	10.0		**43.7**	50.00	0	87.4	44.4	154	12/14/2015
Carbon disulfide	5.0		**51.8**	50.00	0	103.5	73.2	118	12/14/2015
Carbon tetrachloride	5.0		**50.6**	50.00	0	101.2	79.4	130	12/14/2015
Chlorobenzene	5.0		**44.9**	50.00	0	89.9	81.4	110	12/14/2015
Chloroethane	10.0		**46.6**	50.00	0	93.2	52.1	137	12/14/2015

Client: Trihydro Corporation
Client Project: Soil Vapor System

Work Order: 15120758
Report Date: 15-Dec-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114912 **SampType:** LCS Units **µg/L**

SampID: LCS-N151214-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloroform	5.0		**47.0**	50.00	0	93.9	82.7	116	12/14/2015
Chloromethane	10.0		**47.6**	50.00	0	95.2	48.2	144	12/14/2015
Chloroprene	20.0		**45.7**	50.00	0	91.4	80.6	126	12/14/2015
cis-1,2-Dichloroethene	5.0		**47.6**	50.00	0	95.1	78.2	116	12/14/2015
cis-1,3-Dichloropropene	5.0		**54.0**	50.00	0	108.1	83	119	12/14/2015
cis-1,4-Dichloro-2-butene	5.0		**39.8**	50.00	0	79.6	60.7	137	12/14/2015
Cyclohexanone	50.0		**548**	500.0	0	109.5	54.2	145	12/14/2015
Dibromochloromethane	5.0		**47.5**	50.00	0	95.0	81.2	121	12/14/2015
Dibromomethane	5.0		**48.8**	50.00	0	97.5	78.3	118	12/14/2015
Dichlorodifluoromethane	10.0		**59.5**	50.00	0	119.0	20.6	154	12/14/2015
Ethyl acetate	10.0		**51.8**	50.00	0	103.6	73.1	116	12/14/2015
Ethyl ether	5.0		**48.9**	50.00	0	97.7	75.2	109	12/14/2015
Ethyl methacrylate	5.0		**46.4**	50.00	0	92.7	80.1	113	12/14/2015
Ethylbenzene	5.0		**42.7**	50.00	0	85.5	77.2	113	12/14/2015
Hexachlorobutadiene	5.0		**50.9**	50.00	0	101.9	77.3	123	12/14/2015
Hexachloroethane	10.0		**44.2**	50.00	0	88.3	74.6	117	12/14/2015
Iodomethane	5.0		**55.1**	50.00	0	110.3	61.3	140	12/14/2015
Isopropylbenzene	5.0		**45.6**	50.00	0	91.2	81.3	114	12/14/2015
m,p-Xylenes	5.0		**87.0**	100.0	0	87.0	79.6	113	12/14/2015
Methacrylonitrile	10.0		**51.0**	50.00	0	102.0	77.2	125	12/14/2015
Methyl Methacrylate	5.0		**52.1**	50.00	0	104.2	74.2	121	12/14/2015
Methyl tert-butyl ether	2.0		**53.1**	50.00	0	106.2	76.8	117	12/14/2015
Methylacrylate	10.0		**53.1**	50.00	0	106.3	78	124	12/14/2015
Methylene chloride	5.0		**47.5**	50.00	0	94.9	74.1	114	12/14/2015
Naphthalene	10.0		**48.2**	50.00	0	96.4	77.9	122	12/14/2015
n-Butyl acetate	25.0		**41.8**	50.00	0	83.5	74	120	12/14/2015
n-Butylbenzene	5.0		**44.4**	50.00	0	88.8	71.1	120	12/14/2015
n-Heptane	20.0		**45.1**	50.00	0	90.2	67.4	129	12/14/2015
n-Hexane	20.0		**46.9**	50.00	0	93.9	68.4	126	12/14/2015
Nitrobenzene	50.0		**432**	500.0	0	86.5	37.9	181	12/14/2015
n-Propylbenzene	5.0		**42.4**	50.00	0	84.8	74.6	118	12/14/2015
o-Xylene	5.0		**42.6**	50.00	0	85.1	80.1	111	12/14/2015
Pentachloroethane	20.0		**46.6**	50.00	0	93.3	78.8	117	12/14/2015
p-Isopropyltoluene	5.0		**46.3**	50.00	0	92.6	77.6	118	12/14/2015
Propionitrile	50.0		**551**	500.0	0	110.2	72.9	137	12/14/2015
sec-Butylbenzene	5.0		**44.2**	50.00	0	88.4	74.5	119	12/14/2015
Styrene	5.0		**46.1**	50.00	0	92.1	83.4	113	12/14/2015
tert-Butylbenzene	5.0		**40.4**	50.00	0	80.7	75.9	114	12/14/2015
Tetrachloroethene	5.0		**46.4**	50.00	0	92.8	72.5	125	12/14/2015
Tetrahydrofuran	20.0		**49.6**	50.00	0	99.1	69.6	125	12/14/2015
Toluene	5.0		**42.9**	50.00	0	85.9	77.5	113	12/14/2015
trans-1,2-Dichloroethene	5.0		**48.6**	50.00	0	97.3	79	114	12/14/2015
trans-1,3-Dichloropropene	5.0		**46.3**	50.00	0	92.7	78	115	12/14/2015
trans-1,4-Dichloro-2-butene	10.0		**38.5**	50.00	0	76.9	63.3	128	12/14/2015
Trichloroethene	5.0		**48.2**	50.00	0	96.5	84.4	114	12/14/2015
Trichlorofluoromethane	5.0		**49.8**	50.00	0	99.5	75.2	132	12/14/2015
Vinyl acetate	10.0		**51.8**	50.00	0	103.6	64.5	127	12/14/2015

Client: Trihydro Corporation **Work Order:** 15120758

Client Project: Soil Vapor System **Report Date:** 15-Dec-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114912 **SampType:** LCS Units µg/L

SampID: LCS-N151214-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Vinyl chloride	2.0		**44.4**	50.00	0	88.8	58	134	12/14/2015
Surr: 1,2-Dichloroethane-d4			**46.9**	50.00		93.9	74.7	129	12/14/2015
Surr: 4-Bromofluorobenzene			**46.2**	50.00		92.3	86	119	12/14/2015
Surr: Dibromofluoromethane			**51.9**	50.00		103.8	81.7	123	12/14/2015
Surr: Toluene-d8			**45.4**	50.00		90.9	84.1	114	12/14/2015

Batch 114912 **SampType:** MS Units µg/L

SampID: 15120714-006FMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1-Dichloroethene	5.0		**54.7**	50.00	0	109.4	35.7	136	12/14/2015
Benzene	2.0		**56.8**	50.00	0	113.6	62.5	121	12/14/2015
Chlorobenzene	5.0		**51.6**	50.00	0	103.1	78.6	114	12/14/2015
Ethylbenzene	5.0		**52.0**	50.00	0	104.1	74.4	130	12/14/2015
m,p-Xylenes	5.0		**51.7**	50.00	0	103.3	70.5	126	12/14/2015
o-Xylene	5.0		**49.1**	50.00	0	98.1	71.2	124	12/14/2015
Toluene	5.0		**50.5**	50.00	0	101.1	69.5	118	12/14/2015
Trichloroethene	5.0		**58.4**	50.00	0	116.9	69.4	117	12/14/2015
Surr: 1,2-Dichloroethane-d4			**44.6**	50.00		89.3	74.7	129	12/14/2015
Surr: 4-Bromofluorobenzene			**46.8**	50.00		93.7	86	119	12/14/2015
Surr: Dibromofluoromethane			**49.5**	50.00		99.0	81.7	123	12/14/2015
Surr: Toluene-d8			**46.3**	50.00		92.6	84.3	114	12/14/2015

Batch 114912 **SampType:** MSD Units µg/L RPD Limit **20**

SampID: 15120714-006FMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1-Dichloroethene	5.0		**55.1**	50.00	0	110.2	54.68	0.78	12/14/2015
Benzene	2.0		**55.9**	50.00	0	111.7	56.81	1.67	12/14/2015
Chlorobenzene	5.0		**50.3**	50.00	0	100.6	51.56	2.45	12/14/2015
Ethylbenzene	5.0		**51.4**	50.00	0	102.8	52.04	1.28	12/14/2015
m,p-Xylenes	5.0		**52.1**	50.00	0	104.3	51.66	0.91	12/14/2015
o-Xylene	5.0		**50.0**	50.00	0	100.0	49.07	1.88	12/14/2015
Toluene	5.0		**49.5**	50.00	0	99.0	50.54	2.06	12/14/2015
Trichloroethene	5.0		**57.5**	50.00	0	115.1	58.43	1.53	12/14/2015
Surr: 1,2-Dichloroethane-d4			**46.8**	50.00		93.5			12/14/2015
Surr: 4-Bromofluorobenzene			**47.0**	50.00		94.0			12/14/2015
Surr: Dibromofluoromethane			**50.4**	50.00		100.8			12/14/2015
Surr: Toluene-d8			**46.1**	50.00		92.2			12/14/2015

Teklab Inc. Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Trihydro Corporation **Work Order:** 15120758

Client Project: Soil Vapor System **Report Date:** 15-Dec-15

Carrier: Nick Harvey **Received By:** EEP

Completed by: Kalyn Foecke
On: 10-Dec-15
Kalyn Foecke

Reviewed by: Elizabeth A. Hurley
On: 10-Dec-15
Elizabeth A. Hurley

Pages to follow: Chain of custody 1 Extra pages included 0

Shipping container/cooler in good condition?	Yes	☑	No	☐	Not Present	☐	Temp °C	4.22
Type of thermal preservation?	None	☐	Ice	☑	Blue Ice	☐	Dry Ice	☐
Chain of custody present?	Yes	☑	No	☐				
Chain of custody signed when relinquished and received?	Yes	☑	No	☐				
Chain of custody agrees with sample labels?	Yes	☑	No	☐				
Samples in proper container/bottle?	Yes	☑	No	☐				
Sample containers intact?	Yes	☑	No	☐				
Sufficient sample volume for indicated test?	Yes	☑	No	☐				
All samples received within holding time?	Yes	☑	No	☐				
Reported field parameters measured:	Field	☐	Lab	☐	NA	☑		
Container/Temp Blank temperature in compliance?	Yes	☑	No	☐				

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes	☑	No	☐	No VOA vials	☐		
Water - TOX containers have zero headspace?	Yes	☐	No	☐	No TOX containers	☑		
Water - pH acceptable upon receipt?	Yes	☑	No	☐	NA	☐		
NPDES/CWA TCN interferences checked/treated in the field?	Yes	☐	No	☐	NA	☑		

Any No responses must be detailed below or on the COC.

CHAIN OF CUSTODY

pg. ____ of ____ Work Order # 15120758

TEKLAB, INC. 5445 Horseshoe Lake Road ~ Collinsville, IL 62234 ~ Phone: (618) 344-1004 ~ Fax: (618) 344-1005

Client: Trihydro
Address: 1252 Commerce Drive
City / State / Zip: Laramie WY 82070
Contact: Todd Aseltyne Phone: 513 429 7470
E-Mail: TAseltyne@Trihydro.com Fax:

- Are these samples known to be involved in litigation? If yes, a surcharge will apply. ☐ Yes ☐ No
- Are these samples known to be hazardous? ☐ Yes ☐ No
- Are there any required reporting limits to be met on the requested analysis? If yes, please provide limits in comment section. ☐ Yes ☐ No

Samples on: ☒ Ice ☐ Blue Ice ☐ No Ice 4.7 °C
Preserved in: ☐ Lab ☐ Field **FOR LAB USE ONLY**
Lab Notes: 12/10/15
No headspace 12/10/15 3 DAY
Comments:

Project Name / Number: Soil Vapor System
Sample Collector's Name: Todd Hanford

Results Requested: ☐ Standard ☐ 1-2 Day (100% Surcharge) ☐ Other______ ☐ 3 Day (50% Surcharge)

Billing Instructions:

Lab Use Only	Sample Identification	Date/Time Sampled	UNPRES	HNO3	NaOH	H2SO4	HCL	MeOH	NaHSO4	Other	Water	Drinking Water	Soil	Sludge	Sp. Waste	VOC	Flash	Lead	PNA										
15120758-001	Task 3	12/10/15 900														✓	✓	✓	✓										

Relinquished By	Date / Time	Received By	Date / Time
Todd Hanford	12/10/15 905	[signature]	12/10/15 10:30
[signature]	12/10/15 1100	[signature]	12/10/15 1100 Am

The individual signing this agreement on behalf of client acknowledges that he/she has read and understands the terms and conditions of this agreement, on the reverse side, and that he/she has the authority to sign on behalf of client.

WHITE – LAB YELLOW – SAMPLER'S COPY

December 29, 2015

Todd Aseltyne
Trihydro Corporation
1252 Commerce Drive
Laramie, WY 82070
TEL: (513) 429-7470
FAX:

RE: Tank 3 **WorkOrder:** 15121693

Dear Todd Aseltyne:

TEKLAB, INC received 1 sample on 12/28/2015 10:25:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Marvin L. Darling II

Marvin L. Darling
Project Manager
(618)344-1004 ex 41
mdarling@teklabinc.com

Client: Trihydro Corporation **Work Order:** 15121693

Client Project: Tank 3 **Report Date:** 29-Dec-15

This reporting package includes the following:

Client: Trihydro Corporation

Work Order: 15121693

Client Project: Tank 3

Report Date: 29-Dec-15

Abbr Definition

Abbr	Definition
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
DNI	Did not ignite
DUP	Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method’s recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

- # - Unknown hydrocarbon
- E - Value above quantitation range
- I - Associated internal standard was outside method criteria
- M - Manual Integration used to determine area response
- R - RPD outside accepted recovery limits
- T - TIC(Tentatively identified compound)
- B - Analyte detected in associated Method Blank
- H - Holding times exceeded
- J - Analyte detected below quantitation limits
- ND - Not Detected at the Reporting Limit
- S - Spike Recovery outside recovery limits
- X - Value exceeds Maximum Contaminant Level

Teklab, Inc. Environmental Laboratory

Case Narrative

http://www.teklabinc.com/

Client: Trihydro Corporation

Client Project: Tank 3

Work Order: 15121693

Report Date: 29-Dec-15

Cooler Receipt Temp: 8.02 °C

Locations and Accreditations

	Collinsville	Springfield	Kansas City	Collinsville Air
Address	5445 Horseshoe Lake Road	3920 Pintail Dr	8421 Nieman Road	5445 Horseshoe Lake Road
	Collinsville, IL 62234-7425	Springfield, IL 62711-9415	Lenexa, KS 66214	Collinsville, IL 62234-7425
Phone	(618) 344-1004	(217) 698-1004	(913) 541-1998	(618) 344-1004
Fax	(618) 344-1005	(217) 698-1005	(913) 541-1998	(618) 344-1005
Email	jhriley@teklabinc.com	KKlostermann@teklabinc.com	dthompson@teklabinc.com	EHurley@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2017	Collinsville
Kansas	KDHE	E-10374	NELAP	1/31/2016	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2016	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2016	Collinsville
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2016	Collinsville
Arkansas	ADEQ	88-0966		3/14/2016	Collinsville
Illinois	IDPH	17584		5/31/2017	Collinsville
Kentucky	KDEP	98006		12/31/2015	Collinsville
Kentucky	UST	0073		1/31/2016	Collinsville
Missouri	MDNR	00930		5/31/2017	Collinsville
Oklahoma	ODEQ	9978		8/31/2016	Collinsville

Teklab, Inc. Environmental Laboratory

Laboratory Results

http://www.teklabinc.com/

Client: Trihydro Corporation **Work Order:** 15121693
Client Project: Tank 3 **Report Date:** 29-Dec-15
Lab ID: 15121693-001 **Client Sample ID:** Tank 3
Matrix: AQUEOUS **Collection Date:** 12/28/2015 9:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1020B								
Ignitability, Closed Cup	NELAP	60		**>200**	°F	1	12/28/2015 11:21	R213124
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Lead	NELAP	0.0150		**0.0676**	mg/L	1	12/29/2015 8:35	115240
SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1-Methylnaphthalene		0.00050		**0.0105**	mg/L	5	12/28/2015 16:19	115245
Acenaphthene	NELAP	0.00050		**0.00370**	mg/L	5	12/28/2015 16:19	115245
Acenaphthylene	NELAP	0.00050		**ND**	mg/L	5	12/28/2015 16:19	115245
Anthracene	NELAP	0.00050		**0.00445**	mg/L	5	12/28/2015 16:19	115245
Benzo(a)anthracene	NELAP	0.00050		**0.00060**	mg/L	5	12/28/2015 16:19	115245
Benzo(a)pyrene	NELAP	0.00050		**ND**	mg/L	5	12/28/2015 16:19	115245
Benzo(b)fluoranthene	NELAP	0.00050		**ND**	mg/L	5	12/28/2015 16:19	115245
Benzo(g,h,i)perylene	NELAP	0.00050		**ND**	mg/L	5	12/28/2015 16:19	115245
Benzo(k)fluoranthene	NELAP	0.00050		**ND**	mg/L	5	12/28/2015 16:19	115245
Chrysene	NELAP	0.00050		**ND**	mg/L	5	12/28/2015 16:19	115245
Dibenzo(a,h)anthracene	NELAP	0.00050		**ND**	mg/L	5	12/28/2015 16:19	115245
Fluoranthene	NELAP	0.00050		**0.00110**	mg/L	5	12/28/2015 16:19	115245
Fluorene	NELAP	0.00050		**0.00605**	mg/L	5	12/28/2015 16:19	115245
Indeno(1,2,3-cd)pyrene	NELAP	0.00050		**ND**	mg/L	5	12/28/2015 16:19	115245
Naphthalene	NELAP	0.00050		**ND**	mg/L	5	12/28/2015 16:19	115245
Phenanthrene	NELAP	0.00050		**0.0109**	mg/L	5	12/28/2015 16:19	115245
Pyrene	NELAP	0.00050		**0.00395**	mg/L	5	12/28/2015 16:19	115245
Surr: 2-Fluorobiphenyl		10-143		**63.0**	%REC	5	12/28/2015 16:19	115245
Surr: Nitrobenzene-d5		10-166		**53.5**	%REC	5	12/28/2015 16:19	115245
Surr: p-Terphenyl-d14		10-137		**41.0**	%REC	5	12/28/2015 16:19	115245
Elevated reporting limit due to sample extract composition.								
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
1,1,1-Trichloroethane	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
1,1,2,2-Tetrachloroethane	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
1,1,2-Trichloro-1,2,2-trifluoroethane		20.0		**ND**	µg/L	1	12/28/2015 17:58	115254
1,1,2-Trichloroethane	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
1,1-Dichloro-2-propanone		50.0		**ND**	µg/L	1	12/28/2015 17:58	115254
1,1-Dichloroethane	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
1,1-Dichloroethene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
1,1-Dichloropropene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
1,2,3-Trichlorobenzene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
1,2,3-Trichloropropane	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
1,2,3-Trimethylbenzene		5.0		**22.7**	µg/L	1	12/28/2015 17:58	115254
1,2,4-Trichlorobenzene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
1,2,4-Trimethylbenzene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
1,2-Dibromo-3-chloropropane	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
1,2-Dibromoethane	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
1,2-Dichlorobenzene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
1,2-Dichloroethane	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
1,2-Dichloropropane	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
1,3,5-Trimethylbenzene	NELAP	5.0		**14.1**	µg/L	1	12/28/2015 17:58	115254
1,3-Dichlorobenzene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254

Client: Trihydro Corporation **Work Order:** 15121693

Client Project: Tank 3 **Report Date:** 29-Dec-15

Lab ID: 15121693-001 **Client Sample ID:** Tank 3

Matrix: AQUEOUS **Collection Date:** 12/28/2015 9:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,3-Dichloropropane	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
1,4-Dichlorobenzene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
1-Chlorobutane	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
2,2-Dichloropropane	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
2-Butanone	NELAP	25.0		**ND**	µg/L	1	12/28/2015 17:58	115254
2-Chloroethyl vinyl ether	NELAP	20.0		**ND**	µg/L	1	12/28/2015 17:58	115254
2-Chlorotoluene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
2-Hexanone	NELAP	25.0		**ND**	µg/L	1	12/28/2015 17:58	115254
2-Nitropropane	NELAP	50.0		**ND**	µg/L	1	12/28/2015 17:58	115254
4-Chlorotoluene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
4-Methyl-2-pentanone	NELAP	25.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Acetone	NELAP	25.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Acetonitrile	NELAP	50.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Acrolein	NELAP	100		**ND**	µg/L	1	12/28/2015 17:58	115254
Acrylonitrile	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Allyl chloride	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Benzene	NELAP	2.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Bromobenzene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Bromochloromethane	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Bromodichloromethane	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Bromoform	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Bromomethane	NELAP	10.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Carbon disulfide	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Carbon tetrachloride	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Chlorobenzene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Chloroethane	NELAP	10.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Chloroform	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Chloromethane	NELAP	10.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Chloroprene	NELAP	20.0		**ND**	µg/L	1	12/28/2015 17:58	115254
cis-1,2-Dichloroethene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
cis-1,3-Dichloropropene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
cis-1,4-Dichloro-2-butene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Cyclohexanone		50.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Dibromochloromethane	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Dibromomethane	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Dichlorodifluoromethane	NELAP	10.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Ethyl acetate	NELAP	10.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Ethyl ether	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Ethyl methacrylate	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Ethylbenzene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Hexachlorobutadiene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Hexachloroethane	NELAP	10.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Iodomethane	NELAP	5.0	J	**2.7**	µg/L	1	12/28/2015 17:58	115254
Isopropylbenzene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
m,p-Xylenes	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Methacrylonitrile	NELAP	10.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Methyl Methacrylate	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254

Client: Trihydro Corporation **Work Order:** 15121693

Client Project: Tank 3 **Report Date:** 29-Dec-15

Lab ID: 15121693-001 **Client Sample ID:** Tank 3

Matrix: AQUEOUS **Collection Date:** 12/28/2015 9:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Methyl tert-butyl ether	NELAP	2.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Methylacrylate	NELAP	10.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Methylene chloride	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Naphthalene	NELAP	10.0		**ND**	µg/L	1	12/28/2015 17:58	115254
n-Butyl acetate		25.0		**ND**	µg/L	1	12/28/2015 17:58	115254
n-Butylbenzene	NELAP	5.0	J	**4.4**	µg/L	1	12/28/2015 17:58	115254
n-Heptane		20.0		**ND**	µg/L	1	12/28/2015 17:58	115254
n-Hexane		20.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Nitrobenzene	NELAP	50.0		**ND**	µg/L	1	12/28/2015 17:58	115254
n-Propylbenzene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
o-Xylene	NELAP	5.0	J	**2.0**	µg/L	1	12/28/2015 17:58	115254
Pentachloroethane	NELAP	20.0		**ND**	µg/L	1	12/28/2015 17:58	115254
p-Isopropyltoluene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Propionitrile	NELAP	50.0		**ND**	µg/L	1	12/28/2015 17:58	115254
sec-Butylbenzene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Styrene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
tert-Butylbenzene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Tetrachloroethene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Tetrahydrofuran	NELAP	20.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Toluene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
trans-1,2-Dichloroethene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
trans-1,3-Dichloropropene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
trans-1,4-Dichloro-2-butene	NELAP	10.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Trichloroethene	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Trichlorofluoromethane	NELAP	5.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Vinyl acetate	NELAP	10.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Vinyl chloride	NELAP	2.0		**ND**	µg/L	1	12/28/2015 17:58	115254
Surr: 1,2-Dichloroethane-d4		74.7-129		**101.9**	%REC	1	12/28/2015 17:58	115254
Surr: 4-Bromofluorobenzene		86-119		**97.4**	%REC	1	12/28/2015 17:58	115254
Surr: Dibromofluoromethane		81.7-123		**100.1**	%REC	1	12/28/2015 17:58	115254
Surr: Toluene-d8		84.3-114		**99.4**	%REC	1	12/28/2015 17:58	115254

Allowable Marginal Exceedance of Iodomethane in the LCS verified per 2009 TNI Standard (Volume 1, Module 4, section 1.7.4.2).

Allowable Marginal Exceedance of Allyl chloride in the LCSD verified per 2009 TNI Standard (Volume 1, Module 4, section 1.7.4.2).

Client: Trihydro Corporation **Work Order:** 15121693

Client Project: Tank 3 **Report Date:** 29-Dec-15

SW-846 1020B

Batch **R213124** **SampType:** **LCS** Units **°F**

SampID: LCS-R213124

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ignitability, Closed Cup	60		**82**	81.00	0	101.2	97	103	12/28/2015

Batch **R213124** **SampType:** **DUP** Units **°F** RPD Limit **5**

SampID: 15121642-001ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ignitability, Closed Cup	60		**76**				76.00	0.00	12/28/2015

SW-846 3005A, 6010B, METALS BY ICP (TOTAL)

Batch **115240** **SampType:** **MBLK** Units **mg/L**

SampID: MBLK-115240

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	0.0150		**< 0.0150**	0.01500	0	0	-100	100	12/29/2015

Batch **115240** **SampType:** **LCS** Units **mg/L**

SampID: LCS-115240

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	0.0150		**0.567**	0.5000	0	113.5	85	115	12/29/2015

SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch **115245** **SampType:** **MBLK** Units **mg/L**

SampID: MBLK-115245

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1-Methylnaphthalene	0.00010		**ND**						12/28/2015
Acenaphthene	0.00010		**ND**						12/28/2015
Acenaphthylene	0.00010		**ND**						12/28/2015
Anthracene	0.00010		**ND**						12/28/2015
Benzo(a)anthracene	0.00010		**ND**						12/28/2015
Benzo(a)pyrene	0.00010		**ND**						12/28/2015
Benzo(b)fluoranthene	0.00010		**ND**						12/28/2015
Benzo(g,h,i)perylene	0.00010		**ND**						12/28/2015
Benzo(k)fluoranthene	0.00010		**ND**						12/28/2015
Chrysene	0.00010		**ND**						12/28/2015
Dibenzo(a,h)anthracene	0.00010		**ND**						12/28/2015
Fluoranthene	0.00010		**ND**						12/28/2015
Fluorene	0.00010		**ND**						12/28/2015
Indeno(1,2,3-cd)pyrene	0.00010		**ND**						12/28/2015
Naphthalene	0.00010		**ND**						12/28/2015
Phenanthrene	0.00010		**ND**						12/28/2015
Pyrene	0.00010		**ND**						12/28/2015
Surr: 2-Fluorobiphenyl			**0.00387**	0.005000		77.4	44.4	89.6	12/28/2015
Surr: Nitrobenzene-d5			**0.00321**	0.005000		64.2	40.9	81.4	12/28/2015
Surr: p-Terphenyl-d14			**0.00465**	0.005000		93.0	54.3	104	12/28/2015

Teklab, Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Trihydro Corporation

Client Project: Tank 3

Work Order: 15121693

Report Date: 29-Dec-15

SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 115245 **SampType:** LCS Units **mg/L**

SampID: LCS-115245

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1-Methylnaphthalene	0.00010		**0.00389**	).00500(	0	77.8	38.8	96.6	12/28/2015
Acenaphthene	0.00010		**0.00389**	).00500(	0	77.8	46.6	96.4	12/28/2015
Acenaphthylene	0.00010		**0.00379**	).00500(	0	75.8	48.1	95.6	12/28/2015
Anthracene	0.00010		**0.00378**	).00500(	0	75.6	53.2	95.9	12/28/2015
Benzo(a)anthracene	0.00010		**0.00356**	).00500(	0	71.2	52.5	102	12/28/2015
Benzo(a)pyrene	0.00010		**0.00372**	).00500(	0	74.4	55.1	103	12/28/2015
Benzo(b)fluoranthene	0.00010		**0.00367**	).00500(	0	73.4	53.6	105	12/28/2015
Benzo(g,h,i)perylene	0.00010		**0.00356**	).00500(	0	71.2	46.3	110	12/28/2015
Benzo(k)fluoranthene	0.00010		**0.00385**	).00500(	0	77.0	53.8	104	12/28/2015
Chrysene	0.00010		**0.00370**	).00500(	0	74.0	51	101	12/28/2015
Dibenzo(a,h)anthracene	0.00010		**0.00360**	).00500(	0	72.0	49.4	110	12/28/2015
Fluoranthene	0.00010		**0.00394**	).00500(	0	78.8	54.5	99.5	12/28/2015
Fluorene	0.00010		**0.00397**	).00500(	0	79.4	51.1	97.6	12/28/2015
Indeno(1,2,3-cd)pyrene	0.00010		**0.00360**	).00500(	0	72.0	48.6	110	12/28/2015
Naphthalene	0.00010		**0.00377**	).00500(	0	75.4	39.8	93.1	12/28/2015
Phenanthrene	0.00010		**0.00367**	).00500(	0	73.4	52.2	95.9	12/28/2015
Pyrene	0.00010		**0.00392**	).00500(	0	78.4	53.4	99.1	12/28/2015
Surr: 2-Fluorobiphenyl			**0.00378**	).00500(		75.6	44.4	89.6	12/28/2015
Surr: Nitrobenzene-d5			**0.00336**	).00500(		67.2	40.9	81.4	12/28/2015
Surr: p-Terphenyl-d14			**0.00420**	).00500(		84.0	54.3	104	12/28/2015

Batch 115245 **SampType:** LCSD Units **mg/L** RPD Limit **40**

SampID: LCSD-115245

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1-Methylnaphthalene	0.00010		**0.00353**	).00500(	0	70.6	0.003890	9.70	12/28/2015
Acenaphthene	0.00010		**0.00375**	).00500(	0	75.0	0.003890	3.66	12/28/2015
Acenaphthylene	0.00010		**0.00368**	).00500(	0	73.6	0.003790	2.95	12/28/2015
Anthracene	0.00010		**0.00370**	).00500(	0	74.0	0.003780	2.14	12/28/2015
Benzo(a)anthracene	0.00010		**0.00350**	).00500(	0	70.0	0.003560	1.70	12/28/2015
Benzo(a)pyrene	0.00010		**0.00369**	).00500(	0	73.8	0.003720	0.81	12/28/2015
Benzo(b)fluoranthene	0.00010		**0.00366**	).00500(	0	73.2	0.003670	0.27	12/28/2015
Benzo(g,h,i)perylene	0.00010		**0.00350**	).00500(	0	70.0	0.003560	1.70	12/28/2015
Benzo(k)fluoranthene	0.00010		**0.00390**	).00500(	0	78.0	0.003850	1.29	12/28/2015
Chrysene	0.00010		**0.00365**	).00500(	0	73.0	0.003700	1.36	12/28/2015
Dibenzo(a,h)anthracene	0.00010		**0.00356**	).00500(	0	71.2	0.003600	1.12	12/28/2015
Fluoranthene	0.00010		**0.00391**	).00500(	0	78.2	0.003940	0.76	12/28/2015
Fluorene	0.00010		**0.00387**	).00500(	0	77.4	0.003970	2.55	12/28/2015
Indeno(1,2,3-cd)pyrene	0.00010		**0.00357**	).00500(	0	71.4	0.003600	0.84	12/28/2015
Naphthalene	0.00010		**0.00335**	).00500(	0	67.0	0.003770	11.80	12/28/2015
Phenanthrene	0.00010		**0.00364**	).00500(	0	72.8	0.003670	0.82	12/28/2015
Pyrene	0.00010		**0.00385**	).00500(	0	77.0	0.003920	1.80	12/28/2015
Surr: 2-Fluorobiphenyl			**0.00346**	).00500(		69.2			12/28/2015
Surr: Nitrobenzene-d5			**0.00310**	).00500(		62.0			12/28/2015
Surr: p-Terphenyl-d14			**0.00398**	).00500(		79.6			12/28/2015

Client: Trihydro Corporation

Work Order: 15121693

Client Project: Tank 3

Report Date: 29-Dec-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 115254 **SampType:** MBLK Units **µg/L**

SampID: MBLK-R151228-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1,2-Tetrachloroethane	5.0		ND						12/28/2015
1,1,1-Trichloroethane	5.0		ND						12/28/2015
1,1,2,2-Tetrachloroethane	5.0		ND						12/28/2015
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0		ND						12/28/2015
1,1,2-Trichloroethane	5.0		ND						12/28/2015
1,1-Dichloro-2-propanone	50.0		ND						12/28/2015
1,1-Dichloroethane	5.0		ND						12/28/2015
1,1-Dichloroethene	5.0		ND						12/28/2015
1,1-Dichloropropene	5.0		ND						12/28/2015
1,2,3-Trichlorobenzene	5.0		ND						12/28/2015
1,2,3-Trichloropropane	5.0		ND						12/28/2015
1,2,3-Trimethylbenzene	5.0		ND						12/28/2015
1,2,4-Trichlorobenzene	5.0		ND						12/28/2015
1,2,4-Trimethylbenzene	5.0		ND						12/28/2015
1,2-Dibromo-3-chloropropane	5.0		ND						12/28/2015
1,2-Dibromoethane	5.0		ND						12/28/2015
1,2-Dichlorobenzene	5.0		ND						12/28/2015
1,2-Dichloroethane	5.0		ND						12/28/2015
1,2-Dichloropropane	5.0		ND						12/28/2015
1,3,5-Trimethylbenzene	5.0		ND						12/28/2015
1,3-Dichlorobenzene	5.0		ND						12/28/2015
1,3-Dichloropropane	5.0		ND						12/28/2015
1,4-Dichlorobenzene	5.0		ND						12/28/2015
1-Chlorobutane	5.0		ND						12/28/2015
2,2-Dichloropropane	5.0		ND						12/28/2015
2-Butanone	25.0		ND						12/28/2015
2-Chloroethyl vinyl ether	20.0		ND						12/28/2015
2-Chlorotoluene	5.0		ND						12/28/2015
2-Hexanone	25.0		ND						12/28/2015
2-Nitropropane	50.0		ND						12/28/2015
4-Chlorotoluene	5.0		ND						12/28/2015
4-Methyl-2-pentanone	25.0		ND						12/28/2015
Acetone	25.0		ND						12/28/2015
Acetonitrile	50.0		ND						12/28/2015
Acrolein	100		ND						12/28/2015
Acrylonitrile	5.0		ND						12/28/2015
Allyl chloride	5.0		ND						12/28/2015
Benzene	2.0		ND						12/28/2015
Bromobenzene	5.0		ND						12/28/2015
Bromochloromethane	5.0		ND						12/28/2015
Bromodichloromethane	5.0		ND						12/28/2015
Bromoform	5.0		ND						12/28/2015
Bromomethane	10.0		ND						12/28/2015
Carbon disulfide	5.0		ND						12/28/2015
Carbon tetrachloride	5.0		ND						12/28/2015
Chlorobenzene	5.0		ND						12/28/2015
Chloroethane	10.0		ND						12/28/2015

Client: Trihydro Corporation **Work Order:** 15121693

Client Project: Tank 3 **Report Date:** 29-Dec-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 115254 **SampType:** MBLK Units **µg/L**

SampID: MBLK-R151228-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloroform	5.0		**ND**						12/28/2015
Chloromethane	10.0		**ND**						12/28/2015
Chloroprene	20.0		**ND**						12/28/2015
cis-1,2-Dichloroethene	5.0		**ND**						12/28/2015
cis-1,3-Dichloropropene	5.0		**ND**						12/28/2015
cis-1,4-Dichloro-2-butene	5.0		**ND**						12/28/2015
Cyclohexanone	50.0		**ND**						12/28/2015
Dibromochloromethane	5.0		**ND**						12/28/2015
Dibromomethane	5.0		**ND**						12/28/2015
Dichlorodifluoromethane	10.0		**ND**						12/28/2015
Ethyl acetate	10.0		**ND**						12/28/2015
Ethyl ether	5.0		**ND**						12/28/2015
Ethyl methacrylate	5.0		**ND**						12/28/2015
Ethylbenzene	5.0		**ND**						12/28/2015
Hexachlorobutadiene	5.0		**ND**						12/28/2015
Hexachloroethane	10.0		**ND**						12/28/2015
Iodomethane	5.0		**ND**						12/28/2015
Isopropylbenzene	5.0		**ND**						12/28/2015
m,p-Xylenes	5.0		**ND**						12/28/2015
Methacrylonitrile	10.0		**ND**						12/28/2015
Methyl Methacrylate	5.0		**ND**						12/28/2015
Methyl tert-butyl ether	2.0		**ND**						12/28/2015
Methylacrylate	10.0		**ND**						12/28/2015
Methylene chloride	5.0		**ND**						12/28/2015
Naphthalene	10.0		**ND**						12/28/2015
n-Butyl acetate	25.0		**ND**						12/28/2015
n-Butylbenzene	5.0		**ND**						12/28/2015
n-Heptane	20.0		**ND**						12/28/2015
n-Hexane	20.0		**ND**						12/28/2015
Nitrobenzene	50.0		**ND**						12/28/2015
n-Propylbenzene	5.0		**ND**						12/28/2015
o-Xylene	5.0		**ND**						12/28/2015
Pentachloroethane	20.0		**ND**						12/28/2015
p-Isopropyltoluene	5.0		**ND**						12/28/2015
Propionitrile	50.0		**ND**						12/28/2015
sec-Butylbenzene	5.0		**ND**						12/28/2015
Styrene	5.0		**ND**						12/28/2015
tert-Butylbenzene	5.0		**ND**						12/28/2015
Tetrachloroethene	5.0		**ND**						12/28/2015
Tetrahydrofuran	20.0		**ND**						12/28/2015
Toluene	5.0		**ND**						12/28/2015
trans-1,2-Dichloroethene	5.0		**ND**						12/28/2015
trans-1,3-Dichloropropene	5.0		**ND**						12/28/2015
trans-1,4-Dichloro-2-butene	10.0		**ND**						12/28/2015
Trichloroethene	5.0		**ND**						12/28/2015
Trichlorofluoromethane	5.0		**ND**						12/28/2015
Vinyl acetate	10.0		**ND**						12/28/2015

Client: Trihydro Corporation | **Work Order:** 15121693

Client Project: Tank 3 | **Report Date:** 29-Dec-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch **115254** **SampType:** **MBLK** Units **µg/L**

SampID: MBLK-R151228-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Vinyl chloride	2.0		**ND**						12/28/2015
Surr: 1,2-Dichloroethane-d4			**51.5**	50.00		103.0	74.7	129	12/28/2015
Surr: 4-Bromofluorobenzene			**49.5**	50.00		99.1	86	119	12/28/2015
Surr: Dibromofluoromethane			**48.9**	50.00		97.7	81.7	123	12/28/2015
Surr: Toluene-d8			**50.3**	50.00		100.5	84.3	114	12/28/2015

Client: Trihydro Corporation

Client Project: Tank 3

Work Order: 15121693

Report Date: 29-Dec-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 115254 SampType: LCSD Units µg/L RPD Limit 40

SampID: LCSD-R151228-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1,1,2-Tetrachloroethane	5.0		**52.6**	50.00	0	105.3	50.06	5.01	12/28/2015
1,1,1-Trichloroethane	5.0		**53.5**	50.00	0	107.0	47.79	11.29	12/28/2015
1,1,2,2-Tetrachloroethane	5.0		**51.2**	50.00	0	102.4	51.09	0.22	12/28/2015
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0		**53.2**	50.00	0	106.4	47.18	11.96	12/28/2015
1,1,2-Trichloroethane	5.0		**50.7**	50.00	0	101.5	50.17	1.13	12/28/2015
1,1-Dichloro-2-propanone	50.0		**128**	125.0	0	102.4	135.2	5.50	12/28/2015
1,1-Dichloroethane	5.0		**53.2**	50.00	0	106.4	49.10	7.98	12/28/2015
1,1-Dichloroethene	5.0		**57.2**	50.00	0	114.3	49.85	13.64	12/28/2015
1,1-Dichloropropene	5.0		**54.7**	50.00	0	109.4	47.89	13.31	12/28/2015
1,2,3-Trichlorobenzene	5.0		**55.0**	50.00	0	109.9	51.33	6.83	12/28/2015
1,2,3-Trichloropropane	5.0		**48.3**	50.00	0	96.5	47.58	1.44	12/28/2015
1,2,3-Trimethylbenzene	5.0		**51.8**	50.00	0	103.6	47.75	8.14	12/28/2015
1,2,4-Trichlorobenzene	5.0		**54.3**	50.00	0	108.6	49.40	9.45	12/28/2015
1,2,4-Trimethylbenzene	5.0		**54.8**	50.00	0	109.5	50.23	8.61	12/28/2015
1,2-Dibromo-3-chloropropane	5.0		**47.9**	50.00	0	95.7	48.48	1.29	12/28/2015
1,2-Dibromoethane	5.0		**50.9**	50.00	0	101.9	50.49	0.87	12/28/2015
1,2-Dichlorobenzene	5.0		**51.2**	50.00	0	102.5	47.58	7.39	12/28/2015
1,2-Dichloroethane	5.0		**51.1**	50.00	0	102.2	50.56	1.08	12/28/2015
1,2-Dichloropropane	5.0		**52.1**	50.00	0	104.2	49.66	4.76	12/28/2015
1,3,5-Trimethylbenzene	5.0		**55.5**	50.00	0	110.9	50.17	10.03	12/28/2015
1,3-Dichlorobenzene	5.0		**52.4**	50.00	0	104.9	48.58	7.64	12/28/2015
1,3-Dichloropropane	5.0		**50.8**	50.00	0	101.7	50.04	1.59	12/28/2015
1,4-Dichlorobenzene	5.0		**50.5**	50.00	0	101.0	46.44	8.40	12/28/2015
1-Chlorobutane	5.0		**53.1**	50.00	0	106.1	46.79	12.58	12/28/2015
2,2-Dichloropropane	5.0		**55.5**	50.00	0	111.0	48.14	14.20	12/28/2015
2-Butanone	25.0		**119**	125.0	0	95.4	119.6	0.38	12/28/2015
2-Chloroethyl vinyl ether	20.0		**45.1**	50.00	0	90.2	46.44	2.91	12/28/2015
2-Chlorotoluene	5.0		**53.8**	50.00	0	107.6	49.34	8.67	12/28/2015
2-Hexanone	25.0		**132**	125.0	0	105.8	132.8	0.41	12/28/2015
2-Nitropropane	50.0		**574**	500.0	0	114.7	584.3	1.85	12/28/2015
4-Chlorotoluene	5.0		**52.7**	50.00	0	105.3	48.47	8.29	12/28/2015
4-Methyl-2-pentanone	25.0		**128**	125.0	0	102.0	129.0	1.15	12/28/2015
Acetone	25.0		**126**	125.0	0	101.0	124.4	1.45	12/28/2015
Acetonitrile	50.0		**521**	500.0	0	104.3	529.5	1.53	12/28/2015
Acrolein	100		**524**	500.0	0	104.9	530.4	1.16	12/28/2015
Acrylonitrile	5.0		**52.5**	50.00	0	105.0	53.28	1.47	12/28/2015
Allyl chloride	5.0	S	**62.0**	50.00	0	124.1	56.34	9.65	12/28/2015
Benzene	2.0		**52.1**	50.00	0	104.2	47.75	8.75	12/28/2015
Bromobenzene	5.0		**56.6**	50.00	0	113.2	46.76	19.06	12/28/2015
Bromochloromethane	5.0		**49.7**	50.00	0	99.5	49.58	0.32	12/28/2015
Bromodichloromethane	5.0		**49.9**	50.00	0	99.8	48.34	3.18	12/28/2015
Bromoform	5.0		**51.2**	50.00	0	102.5	51.01	0.47	12/28/2015
Bromomethane	10.0		**44.3**	50.00	0	88.6	39.56	11.28	12/28/2015
Carbon disulfide	5.0		**55.6**	50.00	0	111.2	47.42	15.88	12/28/2015
Carbon tetrachloride	5.0		**54.7**	50.00	0	109.4	48.11	12.82	12/28/2015
Chlorobenzene	5.0		**51.6**	50.00	0	103.1	47.96	7.22	12/28/2015
Chloroethane	10.0		**51.8**	50.00	0	103.6	47.05	9.61	12/28/2015

Teklab, Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Trihydro Corporation
Client Project: Tank 3

Work Order: 15121693
Report Date: 29-Dec-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 115254 SampType: LCSD Units µg/L RPD Limit 40

SampID: LCSD-R151228-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloroform	5.0		**50.8**	50.00	0	101.6	47.58	6.51	12/28/2015
Chloromethane	10.0		**48.5**	50.00	0	97.0	44.55	8.47	12/28/2015
Chloroprene	20.0		**52.3**	50.00	0	104.6	46.95	10.82	12/28/2015
cis-1,2-Dichloroethene	5.0		**53.2**	50.00	0	106.5	49.00	8.29	12/28/2015
cis-1,3-Dichloropropene	5.0		**54.0**	50.00	0	108.0	51.80	4.20	12/28/2015
cis-1,4-Dichloro-2-butene	5.0		**55.7**	50.00	0	111.4	54.07	2.95	12/28/2015
Cyclohexanone	50.0		**455**	500.0	0	91.0	419.6	8.12	12/28/2015
Dibromochloromethane	5.0		**51.6**	50.00	0	103.3	50.83	1.58	12/28/2015
Dibromomethane	5.0		**49.1**	50.00	0	98.3	48.14	2.06	12/28/2015
Dichlorodifluoromethane	10.0		**65.1**	50.00	0	130.2	56.56	14.01	12/28/2015
Ethyl acetate	10.0		**52.3**	50.00	0	104.7	52.72	0.74	12/28/2015
Ethyl ether	5.0		**49.1**	50.00	0	98.2	48.48	1.25	12/28/2015
Ethyl methacrylate	5.0		**54.5**	50.00	0	109.0	55.03	0.95	12/28/2015
Ethylbenzene	5.0		**55.4**	50.00	0	110.8	49.96	10.34	12/28/2015
Hexachlorobutadiene	5.0		**58.5**	50.00	0	117.0	49.25	17.14	12/28/2015
Hexachloroethane	10.0		**56.9**	50.00	0	113.7	50.36	12.12	12/28/2015
Iodomethane	5.0		**34.1**	50.00	0	68.3	28.08	19.48	12/28/2015
Isopropylbenzene	5.0		**55.8**	50.00	0	111.6	49.78	11.37	12/28/2015
m,p-Xylenes	5.0		**111**	100.0	0	111.0	100.8	9.64	12/28/2015
Methacrylonitrile	10.0		**50.7**	50.00	0	101.4	51.06	0.67	12/28/2015
Methyl Methacrylate	5.0		**54.4**	50.00	0	108.8	55.13	1.31	12/28/2015
Methyl tert-butyl ether	2.0		**51.0**	50.00	0	102.0	51.18	0.31	12/28/2015
Methylacrylate	10.0		**55.4**	50.00	0	110.9	55.40	0.07	12/28/2015
Methylene chloride	5.0		**49.9**	50.00	0	99.8	48.40	3.01	12/28/2015
Naphthalene	10.0		**56.4**	50.00	0	112.9	54.14	4.18	12/28/2015
n-Butyl acetate	25.0		**54.8**	50.00	0	109.5	55.05	0.53	12/28/2015
n-Butylbenzene	5.0		**55.5**	50.00	0	111.0	48.89	12.63	12/28/2015
n-Heptane	20.0		**57.5**	50.00	0	115.1	48.81	16.42	12/28/2015
n-Hexane	20.0		**57.8**	50.00	0	115.5	49.40	15.59	12/28/2015
Nitrobenzene	50.0		**472**	500.0	0	94.4	438.8	7.29	12/28/2015
n-Propylbenzene	5.0		**55.4**	50.00	0	110.9	49.76	10.78	12/28/2015
o-Xylene	5.0		**54.5**	50.00	0	109.1	49.77	9.13	12/28/2015
Pentachloroethane	20.0		**56.2**	50.00	0	112.5	53.35	5.29	12/28/2015
p-Isopropyltoluene	5.0		**56.8**	50.00	0	113.5	50.22	12.23	12/28/2015
Propionitrile	50.0		**517**	500.0	0	103.3	513.4	0.60	12/28/2015
sec-Butylbenzene	5.0		**55.5**	50.00	0	111.1	49.29	11.92	12/28/2015
Styrene	5.0		**55.4**	50.00	0	110.7	51.00	8.18	12/28/2015
tert-Butylbenzene	5.0		**53.7**	50.00	0	107.5	48.09	11.08	12/28/2015
Tetrachloroethene	5.0		**53.8**	50.00	0	107.7	48.41	10.60	12/28/2015
Tetrahydrofuran	20.0		**47.7**	50.00	0	95.5	48.75	2.09	12/28/2015
Toluene	5.0		**53.2**	50.00	0	106.5	49.31	7.68	12/28/2015
trans-1,2-Dichloroethene	5.0		**55.6**	50.00	0	111.2	50.31	10.01	12/28/2015
trans-1,3-Dichloropropene	5.0		**54.4**	50.00	0	108.9	52.66	3.31	12/28/2015
trans-1,4-Dichloro-2-butene	10.0		**53.6**	50.00	0	107.3	51.93	3.22	12/28/2015
Trichloroethene	5.0		**51.3**	50.00	0	102.6	46.25	10.35	12/28/2015
Trichlorofluoromethane	5.0		**49.0**	50.00	0	98.0	43.22	12.49	12/28/2015
Vinyl acetate	10.0		**55.1**	50.00	0	110.1	52.27	5.20	12/28/2015

Client: Trihydro Corporation

Client Project: Tank 3

Work Order: 15121693

Report Date: 29-Dec-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch **115254** **SampType:** **LCSD** Units **µg/L** RPD Limit **40**

SampID: LCSD-R151228-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Vinyl chloride	2.0		**52.1**	50.00	0	104.2	44.38	16.00	12/28/2015
Surr: 1,2-Dichloroethane-d4			**50.3**	50.00		100.6			12/28/2015
Surr: 4-Bromofluorobenzene			**49.2**	50.00		98.4			12/28/2015
Surr: Dibromofluoromethane			**49.2**	50.00		98.5			12/28/2015
Surr: Toluene-d8			**49.9**	50.00		99.8			12/28/2015

Client: Trihydro Corporation **Work Order:** 15121693

Client Project: Tank 3 **Report Date:** 29-Dec-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 115254 **SampType:** LCS Units **µg/L**

SampID: LCS-R151228-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1,2-Tetrachloroethane	5.0		**50.1**	50.00	0	100.1	81.9	115	12/28/2015
1,1,1-Trichloroethane	5.0		**47.8**	50.00	0	95.6	79.4	124	12/28/2015
1,1,2,2-Tetrachloroethane	5.0		**51.1**	50.00	0	102.2	74.7	116	12/28/2015
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0		**47.2**	50.00	0	94.4	72.9	121	12/28/2015
1,1,2-Trichloroethane	5.0		**50.2**	50.00	0	100.3	80.8	111	12/28/2015
1,1-Dichloro-2-propanone	50.0		**135**	125.0	0	108.2	66.3	130	12/28/2015
1,1-Dichloroethane	5.0		**49.1**	50.00	0	98.2	79.4	114	12/28/2015
1,1-Dichloroethene	5.0		**49.8**	50.00	0	99.7	74.1	117	12/28/2015
1,1-Dichloropropene	5.0		**47.9**	50.00	0	95.8	81.7	116	12/28/2015
1,2,3-Trichlorobenzene	5.0		**51.3**	50.00	0	102.7	79.7	118	12/28/2015
1,2,3-Trichloropropane	5.0		**47.6**	50.00	0	95.2	77.3	112	12/28/2015
1,2,3-Trimethylbenzene	5.0		**47.8**	50.00	0	95.5	79.9	119	12/28/2015
1,2,4-Trichlorobenzene	5.0		**49.4**	50.00	0	98.8	79.3	118	12/28/2015
1,2,4-Trimethylbenzene	5.0		**50.2**	50.00	0	100.5	78.7	115	12/28/2015
1,2-Dibromo-3-chloropropane	5.0		**48.5**	50.00	0	97.0	76	122	12/28/2015
1,2-Dibromoethane	5.0		**50.5**	50.00	0	101.0	80.8	114	12/28/2015
1,2-Dichlorobenzene	5.0		**47.6**	50.00	0	95.2	78.3	112	12/28/2015
1,2-Dichloroethane	5.0		**50.6**	50.00	0	101.1	70.6	118	12/28/2015
1,2-Dichloropropane	5.0		**49.7**	50.00	0	99.3	79.6	113	12/28/2015
1,3,5-Trimethylbenzene	5.0		**50.2**	50.00	0	100.3	77.5	115	12/28/2015
1,3-Dichlorobenzene	5.0		**48.6**	50.00	0	97.2	78.6	117	12/28/2015
1,3-Dichloropropane	5.0		**50.0**	50.00	0	100.1	78.8	112	12/28/2015
1,4-Dichlorobenzene	5.0		**46.4**	50.00	0	92.9	77.8	114	12/28/2015
1-Chlorobutane	5.0		**46.8**	50.00	0	93.6	78.6	115	12/28/2015
2,2-Dichloropropane	5.0		**48.1**	50.00	0	96.3	74.9	130	12/28/2015
2-Butanone	25.0		**120**	125.0	0	95.7	70.7	136	12/28/2015
2-Chloroethyl vinyl ether	20.0		**46.4**	50.00	0	92.9	52.5	145	12/28/2015
2-Chlorotoluene	5.0		**49.3**	50.00	0	98.7	77.4	114	12/28/2015
2-Hexanone	25.0		**133**	125.0	0	106.3	73.3	125	12/28/2015
2-Nitropropane	50.0		**584**	500.0	0	116.9	67.3	139	12/28/2015
4-Chlorotoluene	5.0		**48.5**	50.00	0	96.9	78.3	115	12/28/2015
4-Methyl-2-pentanone	25.0		**129**	125.0	0	103.2	76.3	122	12/28/2015
Acetone	25.0		**124**	125.0	0	99.5	56.4	147	12/28/2015
Acetonitrile	50.0		**529**	500.0	0	105.9	59.3	129	12/28/2015
Acrolein	100		**530**	500.0	0	106.1	1	201	12/28/2015
Acrylonitrile	5.0		**53.3**	50.00	0	106.6	74.1	128	12/28/2015
Allyl chloride	5.0		**56.3**	50.00	0	112.7	71.5	123	12/28/2015
Benzene	2.0		**47.8**	50.00	0	95.5	80	114	12/28/2015
Bromobenzene	5.0		**46.8**	50.00	0	93.5	73.2	118	12/28/2015
Bromochloromethane	5.0		**49.6**	50.00	0	99.2	73.3	121	12/28/2015
Bromodichloromethane	5.0		**48.3**	50.00	0	96.7	81.6	121	12/28/2015
Bromoform	5.0		**51.0**	50.00	0	102.0	83.1	127	12/28/2015
Bromomethane	10.0		**39.6**	50.00	0	79.1	44.4	154	12/28/2015
Carbon disulfide	5.0		**47.4**	50.00	0	94.8	73.2	118	12/28/2015
Carbon tetrachloride	5.0		**48.1**	50.00	0	96.2	79.4	130	12/28/2015
Chlorobenzene	5.0		**48.0**	50.00	0	95.9	81.4	110	12/28/2015
Chloroethane	10.0		**47.0**	50.00	0	94.1	52.1	137	12/28/2015

Teklab, Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Trihydro Corporation

Client Project: Tank 3

Work Order: 15121693

Report Date: 29-Dec-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 115254 **SampType:** LCS Units **µg/L**

SampID: LCS-R151228-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloroform	5.0		**47.6**	50.00	0	95.2	82.7	116	12/28/2015
Chloromethane	10.0		**44.6**	50.00	0	89.1	48.2	144	12/28/2015
Chloroprene	20.0		**47.0**	50.00	0	93.9	80.6	126	12/28/2015
cis-1,2-Dichloroethene	5.0		**49.0**	50.00	0	98.0	78.2	116	12/28/2015
cis-1,3-Dichloropropene	5.0		**51.8**	50.00	0	103.6	83	119	12/28/2015
cis-1,4-Dichloro-2-butene	5.0		**54.1**	50.00	0	108.1	60.7	137	12/28/2015
Cyclohexanone	50.0		**420**	500.0	0	83.9	54.2	145	12/28/2015
Dibromochloromethane	5.0		**50.8**	50.00	0	101.7	81.2	121	12/28/2015
Dibromomethane	5.0		**48.1**	50.00	0	96.3	78.3	118	12/28/2015
Dichlorodifluoromethane	10.0		**56.6**	50.00	0	113.1	20.6	154	12/28/2015
Ethyl acetate	10.0		**52.7**	50.00	0	105.4	73.1	116	12/28/2015
Ethyl ether	5.0		**48.5**	50.00	0	97.0	75.2	109	12/28/2015
Ethyl methacrylate	5.0		**55.0**	50.00	0	110.1	80.1	113	12/28/2015
Ethylbenzene	5.0		**50.0**	50.00	0	99.9	77.2	113	12/28/2015
Hexachlorobutadiene	5.0		**49.2**	50.00	0	98.5	77.3	123	12/28/2015
Hexachloroethane	10.0		**50.4**	50.00	0	100.7	74.6	117	12/28/2015
Iodomethane	5.0	S	**28.1**	50.00	0	56.2	61.3	140	12/28/2015
Isopropylbenzene	5.0		**49.8**	50.00	0	99.6	81.3	114	12/28/2015
m,p-Xylenes	5.0		**101**	100.0	0	100.8	79.6	113	12/28/2015
Methacrylonitrile	10.0		**51.1**	50.00	0	102.1	77.2	125	12/28/2015
Methyl Methacrylate	5.0		**55.1**	50.00	0	110.3	74.2	121	12/28/2015
Methyl tert-butyl ether	2.0		**51.2**	50.00	0	102.4	76.8	117	12/28/2015
Methylacrylate	10.0		**55.4**	50.00	0	110.8	78	124	12/28/2015
Methylene chloride	5.0		**48.4**	50.00	0	96.8	74.1	114	12/28/2015
Naphthalene	10.0		**54.1**	50.00	0	108.3	77.9	122	12/28/2015
n-Butyl acetate	25.0		**55.0**	50.00	0	110.1	74	120	12/28/2015
n-Butylbenzene	5.0		**48.9**	50.00	0	97.8	71.1	120	12/28/2015
n-Heptane	20.0		**48.8**	50.00	0	97.6	67.4	129	12/28/2015
n-Hexane	20.0		**49.4**	50.00	0	98.8	68.4	126	12/28/2015
Nitrobenzene	50.0		**439**	500.0	0	87.8	37.9	181	12/28/2015
n-Propylbenzene	5.0		**49.8**	50.00	0	99.5	74.6	118	12/28/2015
o-Xylene	5.0		**49.8**	50.00	0	99.5	80.1	111	12/28/2015
Pentachloroethane	20.0		**53.4**	50.00	0	106.7	78.8	117	12/28/2015
p-Isopropyltoluene	5.0		**50.2**	50.00	0	100.4	77.6	118	12/28/2015
Propionitrile	50.0		**513**	500.0	0	102.7	72.9	137	12/28/2015
sec-Butylbenzene	5.0		**49.3**	50.00	0	98.6	74.5	119	12/28/2015
Styrene	5.0		**51.0**	50.00	0	102.0	83.4	113	12/28/2015
tert-Butylbenzene	5.0		**48.1**	50.00	0	96.2	75.9	114	12/28/2015
Tetrachloroethene	5.0		**48.4**	50.00	0	96.8	72.5	125	12/28/2015
Tetrahydrofuran	20.0		**48.8**	50.00	0	97.5	69.6	125	12/28/2015
Toluene	5.0		**49.3**	50.00	0	98.6	77.5	113	12/28/2015
trans-1,2-Dichloroethene	5.0		**50.3**	50.00	0	100.6	79	114	12/28/2015
trans-1,3-Dichloropropene	5.0		**52.7**	50.00	0	105.3	78	115	12/28/2015
trans-1,4-Dichloro-2-butene	10.0		**51.9**	50.00	0	103.9	63.3	128	12/28/2015
Trichloroethene	5.0		**46.2**	50.00	0	92.5	84.4	114	12/28/2015
Trichlorofluoromethane	5.0		**43.2**	50.00	0	86.4	75.2	132	12/28/2015
Vinyl acetate	10.0		**52.3**	50.00	0	104.5	64.5	127	12/28/2015

Client: Trihydro Corporation **Work Order:** 15121693

Client Project: Tank 3 **Report Date:** 29-Dec-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 115254 **SampType:** LCS Units **µg/L**

SampID: LCS-R151228-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Vinyl chloride	2.0		**44.4**	50.00	0	88.8	58	134	12/28/2015
Surr: 1,2-Dichloroethane-d4			**50.2**	50.00		100.5	74.7	129	12/28/2015
Surr: 4-Bromofluorobenzene			**49.7**	50.00		99.3	86	119	12/28/2015
Surr: Dibromofluoromethane			**49.3**	50.00		98.6	81.7	123	12/28/2015
Surr: Toluene-d8			**50.6**	50.00		101.1	84.1	114	12/28/2015

Batch 115254 **SampType:** MS Units **µg/L**

SampID: 15121574-002AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1-Dichloroethene	100		**1020**	1000	0	101.9	35.7	136	12/28/2015
Benzene	40.0		**1020**	1000	0	101.9	62.5	121	12/28/2015
Chlorobenzene	100		**976**	1000	0	97.6	78.6	114	12/28/2015
Ethylbenzene	100		**1090**	1000	0	108.7	74.4	130	12/28/2015
m,p-Xylenes	100		**1070**	1000	0	107.5	70.5	126	12/28/2015
o-Xylene	100		**1020**	1000	0	102.3	71.2	124	12/28/2015
Toluene	100		**1000**	1000	44.40	95.6	69.5	118	12/28/2015
Trichloroethene	100		**1040**	1000	0	104.1	69.4	117	12/28/2015
Surr: 1,2-Dichloroethane-d4			**1010**	1000		101.2	74.7	129	12/28/2015
Surr: 4-Bromofluorobenzene			**974**	1000		97.4	86	119	12/28/2015
Surr: Dibromofluoromethane			**984**	1000		98.4	81.7	123	12/28/2015
Surr: Toluene-d8			**997**	1000		99.7	84.3	114	12/28/2015

Batch 115254 **SampType:** MSD Units **µg/L** RPD Limit **20**

SampID: 15121574-002AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1-Dichloroethene	100		**997**	1000	0	99.7	1019	2.22	12/28/2015
Benzene	40.0		**996**	1000	0	99.6	1019	2.28	12/28/2015
Chlorobenzene	100		**956**	1000	0	95.6	975.6	2.03	12/28/2015
Ethylbenzene	100		**1050**	1000	0	104.9	1087	3.56	12/28/2015
m,p-Xylenes	100		**1050**	1000	0	105.0	1075	2.30	12/28/2015
o-Xylene	100		**998**	1000	0	99.8	1023	2.47	12/28/2015
Toluene	100		**976**	1000	44.40	93.2	1000	2.39	12/28/2015
Trichloroethene	100		**1010**	1000	0	101.5	1041	2.55	12/28/2015
Surr: 1,2-Dichloroethane-d4			**1030**	1000		102.8			12/28/2015
Surr: 4-Bromofluorobenzene			**981**	1000		98.1			12/28/2015
Surr: Dibromofluoromethane			**1010**	1000		100.6			12/28/2015
Surr: Toluene-d8			**987**	1000		98.7			12/28/2015

Client: Trihydro Corporation

Client Project: Tank 3

Work Order: 15121693

Report Date: 29-Dec-15

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 115254 **SampType:** **MS** Units **µg/L**

SampID: 15121690-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Benzene	20.0		**563**	500.0	70.80	98.4	62.5	121	12/28/2015
Ethylbenzene	50.0		**562**	500.0	22.70	107.8	74.4	130	12/28/2015
m,p-Xylenes	50.0		**649**	500.0	109.6	107.8	70.5	126	12/28/2015
o-Xylene	50.0		**555**	500.0	45.10	102.0	71.2	124	12/28/2015
Toluene	50.0		**631**	500.0	134.3	99.4	69.5	118	12/28/2015
Surr: 1,2-Dichloroethane-d4			**508**	500.0		101.5	74.7	129	12/28/2015
Surr: 4-Bromofluorobenzene			**494**	500.0		98.8	86	119	12/28/2015
Surr: Dibromofluoromethane			**486**	500.0		97.1	81.7	123	12/28/2015
Surr: Toluene-d8			**502**	500.0		100.3	84.3	114	12/28/2015

Batch 115254 **SampType:** **MSD** Units **µg/L** RPD Limit **20**

SampID: 15121690-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Benzene	20.0		**556**	500.0	70.80	97.0	562.7	1.25	12/28/2015
Ethylbenzene	50.0		**543**	500.0	22.70	104.0	561.6	3.39	12/28/2015
m,p-Xylenes	50.0		**628**	500.0	109.6	103.8	648.6	3.16	12/28/2015
o-Xylene	50.0		**542**	500.0	45.10	99.4	555.0	2.39	12/28/2015
Toluene	50.0		**621**	500.0	134.3	97.4	631.4	1.61	12/28/2015
Surr: 1,2-Dichloroethane-d4			**515**	500.0		102.9			12/28/2015
Surr: 4-Bromofluorobenzene			**488**	500.0		97.6			12/28/2015
Surr: Dibromofluoromethane			**494**	500.0		98.9			12/28/2015
Surr: Toluene-d8			**499**	500.0		99.9			12/28/2015

Teklab Inc. Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Trihydro Corporation **Work Order:** 15121693

Client Project: Tank 3 **Report Date:** 29-Dec-15

Carrier: Employee **Received By:** AMD

Completed by: M. Kaminski **Reviewed by:** Elizabeth A. Hurley

On: 28-Dec-15 Mary Anne Kaminski **On:** 28-Dec-15 Elizabeth A. Hurley

Pages to follow: Chain of custody 1 Extra pages included 0

Shipping container/cooler in good condition?	Yes	☑	No	☐	Not Present	☐	Temp °C	8.02
Type of thermal preservation?	None	☑	Ice	☐	Blue Ice	☐	Dry Ice	☐
Chain of custody present?	Yes	☑	No	☐				
Chain of custody signed when relinquished and received?	Yes	☑	No	☐				
Chain of custody agrees with sample labels?	Yes	☑	No	☐				
Samples in proper container/bottle?	Yes	☑	No	☐				
Sample containers intact?	Yes	☑	No	☐				
Sufficient sample volume for indicated test?	Yes	☑	No	☐				
All samples received within holding time?	Yes	☑	No	☐				
Reported field parameters measured:	Field	☐	Lab	☐	NA	☑		
Container/Temp Blank temperature in compliance?	Yes	☐	No	☑				

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes	☑	No	☐	No VOA vials	☐		
Water - TOX containers have zero headspace?	Yes	☐	No	☐	No TOX containers	☑		
Water - pH acceptable upon receipt?	Yes	☑	No	☐	NA	☐		
NPDES/CWA TCN interferences checked/treated in the field?	Yes	☐	No	☐	NA	☑		

Any No responses must be detailed below or on the COC.

The sample was out of temperature compliance upon receipt. Per Todd Aseltyne proceed with analyze. MAK 12/28/15

CHAIN OF CUSTODY

pg. 1 of 1 Work Order # 15121693

TEKLAB, INC. 5445 Horseshoe Lake Road ~ Collinsville, IL 62234 ~ Phone: (618) 344-1004 ~ Fax: (618) 344-1005

Client: TRIHYDRO
Address: 1252 COMMERCE DRIVE
City / State / Zip: LARAMIE, WY 82070
Contact: TODD ASELTYNE Phone: 513-429-7470
E-Mail: TASELTYNE@TRIHYDRO.COM Fax:

Samples on: ☐ Ice ☐ Blue Ice ☑ No Ice 8.02 °C
Preserved in: ☐ Lab ☑ Field FOR LAB USE ONLY
Lab Notes: ams 12.28.15
zero head space ams 12.28.15
Comments: Analysis per project history. mcoII 12/28/15

ONE DAY TAT

- Are these samples known to be involved in litigation? If yes, a surcharge will apply. ☐ Yes ☐ No
- Are these samples known to be hazardous? ☐ Yes ☐ No
- Are there any required reporting limits to be met on the requested analysis? If yes, please provide limits in comment section. ☐ Yes ☐ No

Project Name / Number:
Sample Collector's Name:

Results Requested: ☐ Standard ☒ 1-2 Day (100% Surcharge) ☐ Other______ ☐ 3 Day (50% Surcharge)

Billing Instructions:

Lab Use Only	Sample Identification	Date/Time Sampled	UNPRES	HNO_3	NaOH	H_2SO_4	HCL	MeOH	$NaHSO_4$	Other	Water	Drinking Water	Soil	Sludge	Sp. Waste	VOC	FLASH mcoII 12/28/15 ~~FLUSH~~	LEAD	PNA
15121693 001	TANK 3	12-28-15 0930														X	X	X	X

Relinquished By	Date / Time	Received By	Date / Time
Wala R	12/28/15 10:25	Amber Olcallo	12-28-15 1025

The individual signing this agreement on behalf of client acknowledges that he/she has read and understands the terms and conditions of this agreement, on the reverse side, and that he/she has the authority to sign on behalf of client.

WHITE & YELLOW – LAB PINK – SAMPLER'S COPY

January 13, 2016

Todd Aseltyne
Trihydro Corporation
1252 Commerce Drive
Laramie, WY 82070
TEL: (513) 429-7470
FAX:

RE: Water from Soil Vapor System **WorkOrder:** 16010422

Dear Todd Aseltyne:

TEKLAB, INC received 1 sample on 1/8/2016 11:10:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Marvin L. Darling
Project Manager
(618)344-1004 ex 41
mdarling@teklabinc.com

Client: Trihydro Corporation **Work Order:** 16010422

Client Project: Water from Soil Vapor System **Report Date:** 13-Jan-16

This reporting package includes the following:

Client: Trihydro Corporation **Work Order:** 16010422

Client Project: Water from Soil Vapor System **Report Date:** 13-Jan-16

Abbr	Definition
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
DNI	Did not ignite
DUP	Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

# -	Unknown hydrocarbon	B -	Analyte detected in associated Method Blank
E -	Value above quantitation range	H -	Holding times exceeded
I -	Associated internal standard was outside method criteria	J -	Analyte detected below quantitation limits
M -	Manual Integration used to determine area response	ND -	Not Detected at the Reporting Limit
R -	RPD outside accepted recovery limits	S -	Spike Recovery outside recovery limits
T -	TIC(Tentatively identified compound)	X -	Value exceeds Maximum Contaminant Level

Client: Trihydro Corporation **Work Order:** 16010422

Client Project: Water from Soil Vapor System **Report Date:** 13-Jan-16

Cooler Receipt Temp: 2.22 °C

Locations and Accreditations

	Collinsville	Springfield	Kansas City	Collinsville Air
Address	5445 Horseshoe Lake Road	3920 Pintail Dr	8421 Nieman Road	5445 Horseshoe Lake Road
	Collinsville, IL 62234-7425	Springfield, IL 62711-9415	Lenexa, KS 66214	Collinsville, IL 62234-7425
Phone	(618) 344-1004	(217) 698-1004	(913) 541-1998	(618) 344-1004
Fax	(618) 344-1005	(217) 698-1005	(913) 541-1998	(618) 344-1005
Email	jhriley@teklabinc.com	KKlostermann@teklabinc.com	dthompson@teklabinc.com	EHurley@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2017	Collinsville
Kansas	KDHE	E-10374	NELAP	1/31/2016	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2016	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2016	Collinsville
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2016	Collinsville
Arkansas	ADEQ	88-0966		3/14/2016	Collinsville
Illinois	IDPH	17584		5/31/2017	Collinsville
Kentucky	KDEP	98006		12/31/2016	Collinsville
Kentucky	UST	0073		1/31/2016	Collinsville
Missouri	MDNR	00930		5/31/2017	Collinsville
Oklahoma	ODEQ	9978		8/31/2016	Collinsville

Client: Trihydro Corporation **Work Order:** 16010422

Client Project: Water from Soil Vapor System **Report Date:** 13-Jan-16

Lab ID: 16010422-001 **Client Sample ID:** Tank 3

Matrix: AQUEOUS **Collection Date:** 01/08/2016 7:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1020B								
Ignitability, Closed Cup	NELAP	60		**>200**	°F	1	01/08/2016 13:24	R213565
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Lead	NELAP	0.0150		**0.0510**	mg/L	1	01/11/2016 14:49	115510
SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1-Methylnaphthalene		0.00050		**0.0102**	mg/L	5	01/13/2016 10:56	115455
Acenaphthene	NELAP	0.00050		**0.00150**	mg/L	5	01/13/2016 10:56	115455
Acenaphthylene	NELAP	0.00050		**ND**	mg/L	5	01/13/2016 10:56	115455
Anthracene	NELAP	0.00050		**0.00210**	mg/L	5	01/13/2016 10:56	115455
Benzo(a)anthracene	NELAP	0.00050		**0.00050**	mg/L	5	01/13/2016 10:56	115455
Benzo(a)pyrene	NELAP	0.00050		**ND**	mg/L	5	01/13/2016 10:56	115455
Benzo(b)fluoranthene	NELAP	0.00050		**ND**	mg/L	5	01/13/2016 10:56	115455
Benzo(g,h,i)perylene	NELAP	0.00050		**ND**	mg/L	5	01/13/2016 10:56	115455
Benzo(k)fluoranthene	NELAP	0.00050		**ND**	mg/L	5	01/13/2016 10:56	115455
Chrysene	NELAP	0.00050		**ND**	mg/L	5	01/13/2016 10:56	115455
Dibenzo(a,h)anthracene	NELAP	0.00050		**ND**	mg/L	5	01/13/2016 10:56	115455
Fluoranthene	NELAP	0.00050		**0.00065**	mg/L	5	01/13/2016 10:56	115455
Fluorene	NELAP	0.00050		**0.00215**	mg/L	5	01/13/2016 10:56	115455
Indeno(1,2,3-cd)pyrene	NELAP	0.00050		**ND**	mg/L	5	01/13/2016 10:56	115455
Naphthalene	NELAP	0.00050		**0.00065**	mg/L	5	01/13/2016 10:56	115455
Phenanthrene	NELAP	0.00050		**0.00330**	mg/L	5	01/13/2016 10:56	115455
Pyrene	NELAP	0.00050		**0.00255**	mg/L	5	01/13/2016 10:56	115455
Surr: 2-Fluorobiphenyl		10-143		**42.5**	%REC	5	01/13/2016 10:56	115455
Surr: Nitrobenzene-d5		10-166		**38.0**	%REC	5	01/13/2016 10:56	115455
Surr: p-Terphenyl-d14		10-137		**45.0**	%REC	5	01/13/2016 10:56	115455
Elevated reporting limit due to sample extract composition.								
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
1,1,1-Trichloroethane	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
1,1,2,2-Tetrachloroethane	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
1,1,2-Trichloro-1,2,2-trifluoroethane		20.0		**ND**	µg/L	1	01/08/2016 15:29	115516
1,1,2-Trichloroethane	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
1,1-Dichloro-2-propanone		50.0		**ND**	µg/L	1	01/08/2016 15:29	115516
1,1-Dichloroethane	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
1,1-Dichloroethene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
1,1-Dichloropropene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
1,2,3-Trichlorobenzene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
1,2,3-Trichloropropane	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
1,2,3-Trimethylbenzene		5.0		**25.1**	µg/L	1	01/08/2016 15:29	115516
1,2,4-Trichlorobenzene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
1,2,4-Trimethylbenzene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
1,2-Dibromo-3-chloropropane	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
1,2-Dibromoethane	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
1,2-Dichlorobenzene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
1,2-Dichloroethane	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
1,2-Dichloropropane	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
1,3,5-Trimethylbenzene	NELAP	5.0		**19.0**	µg/L	1	01/08/2016 15:29	115516
1,3-Dichlorobenzene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516

Teklab, Inc. Environmental Laboratory

Laboratory Results

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Client: Trihydro Corporation **Work Order:** 16010422

Client Project: Water from Soil Vapor System **Report Date:** 13-Jan-16

Lab ID: 16010422-001 **Client Sample ID:** Tank 3

Matrix: AQUEOUS **Collection Date:** 01/08/2016 7:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,3-Dichloropropane	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
1,4-Dichlorobenzene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
1-Chlorobutane	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
2,2-Dichloropropane	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
2-Butanone	NELAP	25.0		**ND**	µg/L	1	01/08/2016 15:29	115516
2-Chloroethyl vinyl ether	NELAP	20.0		**ND**	µg/L	1	01/08/2016 15:29	115516
2-Chlorotoluene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
2-Hexanone	NELAP	25.0		**ND**	µg/L	1	01/08/2016 15:29	115516
2-Nitropropane	NELAP	50.0		**ND**	µg/L	1	01/08/2016 15:29	115516
4-Chlorotoluene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
4-Methyl-2-pentanone	NELAP	25.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Acetone	NELAP	25.0		**132**	µg/L	1	01/08/2016 15:29	115516
Acetonitrile	NELAP	50.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Acrolein	NELAP	100		**ND**	µg/L	1	01/08/2016 15:29	115516
Acrylonitrile	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Allyl chloride	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Benzene	NELAP	2.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Bromobenzene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Bromochloromethane	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Bromodichloromethane	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Bromoform	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Bromomethane	NELAP	10.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Carbon disulfide	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Carbon tetrachloride	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Chlorobenzene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Chloroethane	NELAP	10.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Chloroform	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Chloromethane	NELAP	10.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Chloroprene	NELAP	20.0		**ND**	µg/L	1	01/08/2016 15:29	115516
cis-1,2-Dichloroethene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
cis-1,3-Dichloropropene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
cis-1,4-Dichloro-2-butene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Cyclohexanone		50.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Dibromochloromethane	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Dibromomethane	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Dichlorodifluoromethane	NELAP	10.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Ethyl acetate	NELAP	10.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Ethyl ether	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Ethyl methacrylate	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Ethylbenzene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Hexachlorobutadiene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Hexachloroethane	NELAP	10.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Iodomethane	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Isopropylbenzene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
m,p-Xylenes	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Methacrylonitrile	NELAP	10.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Methyl Methacrylate	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516

Client: Trihydro Corporation | **Work Order:** 16010422

Client Project: Water from Soil Vapor System | **Report Date:** 13-Jan-16

Lab ID: 16010422-001 | **Client Sample ID:** Tank 3

Matrix: AQUEOUS | **Collection Date:** 01/08/2016 7:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Methyl tert-butyl ether	NELAP	2.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Methylacrylate	NELAP	10.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Methylene chloride	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Naphthalene	NELAP	10.0		**ND**	µg/L	1	01/08/2016 15:29	115516
n-Butyl acetate		25.0		**ND**	µg/L	1	01/08/2016 15:29	115516
n-Butylbenzene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
n-Heptane		20.0		**ND**	µg/L	1	01/08/2016 15:29	115516
n-Hexane		20.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Nitrobenzene	NELAP	50.0		**ND**	µg/L	1	01/08/2016 15:29	115516
n-Propylbenzene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
o-Xylene	NELAP	5.0	J	**2.3**	µg/L	1	01/08/2016 15:29	115516
Pentachloroethane	NELAP	20.0		**ND**	µg/L	1	01/08/2016 15:29	115516
p-Isopropyltoluene	NELAP	5.0	J	**1.4**	µg/L	1	01/08/2016 15:29	115516
Propionitrile	NELAP	50.0		**ND**	µg/L	1	01/08/2016 15:29	115516
sec-Butylbenzene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Styrene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
tert-Butylbenzene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Tetrachloroethene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Tetrahydrofuran	NELAP	20.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Toluene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
trans-1,2-Dichloroethene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
trans-1,3-Dichloropropene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
trans-1,4-Dichloro-2-butene	NELAP	10.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Trichloroethene	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Trichlorofluoromethane	NELAP	5.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Vinyl acetate	NELAP	10.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Vinyl chloride	NELAP	2.0		**ND**	µg/L	1	01/08/2016 15:29	115516
Surr: 1,2-Dichloroethane-d4		74.7-129		**96.3**	%REC	1	01/08/2016 15:29	115516
Surr: 4-Bromofluorobenzene		86-119		**96.2**	%REC	1	01/08/2016 15:29	115516
Surr: Dibromofluoromethane		81.7-123		**94.6**	%REC	1	01/08/2016 15:29	115516
Surr: Toluene-d8		84.3-114		**96.6**	%REC	1	01/08/2016 15:29	115516

Client: Trihydro Corporation
Client Project: Water from Soil Vapor System
Work Order: 16010422
Report Date: 13-Jan-16

SW-846 1020B

Batch R213565 **SampType:** LCS Units °F
SampID: LCS-R213565

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ignitability, Closed Cup	60		**81**	81.00	0	100.0	97	103	01/08/2016

Batch R213565 **SampType:** DUP Units °F RPD Limit **5**
SampID: 16010422-001BDUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ignitability, Closed Cup	60		**>200**				0	0.00	01/08/2016

SW-846 3005A, 6010B, METALS BY ICP (TOTAL)

Batch 115510 **SampType:** MBLK Units mg/L
SampID: MBLK-115510

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	0.0150		**< 0.0150**	0.01500	0	0	-100	100	01/11/2016

Batch 115510 **SampType:** LCS Units mg/L
SampID: LCS-115510

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	0.0150		**0.546**	0.5000	0	109.3	85	115	01/11/2016

Client: Trihydro Corporation **Work Order:** 16010422

Client Project: Water from Soil Vapor System **Report Date:** 13-Jan-16

SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 115455 **SampType:** MBLK Units **mg/L**

SampID: MBLK-115455

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1-Methylnaphthalene	0.00010		**ND**						01/08/2016
Acenaphthene	0.00010		**ND**						01/07/2016
Acenaphthene	0.00010		**ND**						01/08/2016
Acenaphthylene	0.00010		**ND**						01/08/2016
Anthracene	0.00010		**ND**						01/07/2016
Anthracene	0.00010		**ND**						01/08/2016
Benzo(a)anthracene	0.00010		**ND**						01/08/2016
Benzo(a)pyrene	0.00010		**ND**						01/08/2016
Benzo(b)fluoranthene	0.00010		**ND**						01/08/2016
Benzo(g,h,i)perylene	0.00010		**ND**						01/08/2016
Benzo(k)fluoranthene	0.00010		**ND**						01/08/2016
Chrysene	0.00010		**ND**						01/08/2016
Dibenzo(a,h)anthracene	0.00010		**ND**						01/08/2016
Fluoranthene	0.00010		**ND**						01/07/2016
Fluoranthene	0.00010		**ND**						01/08/2016
Fluorene	0.00010		**ND**						01/07/2016
Fluorene	0.00010		**ND**						01/08/2016
Indeno(1,2,3-cd)pyrene	0.00010		**ND**						01/08/2016
Naphthalene	0.00010		**ND**						01/07/2016
Naphthalene	0.00010		**ND**						01/08/2016
Phenanthrene	0.00010		**ND**						01/07/2016
Phenanthrene	0.00010		**ND**						01/08/2016
Pyrene	0.00010		**ND**						01/08/2016
Pyrene	0.00010		**ND**						01/07/2016
Surr: 2-Fluorobiphenyl			**0.00370**	).00500(		74.0	30.2	114	01/07/2016
Surr: 2-Fluorobiphenyl			**0.00405**	).00500(		81.0	44.4	89.6	01/08/2016
Surr: Nitrobenzene-d5			**0.00286**	).00500(		57.2	40.9	81.4	01/08/2016
Surr: Nitrobenzene-d5			**0.00337**	).00500(		67.4	27.2	106	01/07/2016
Surr: p-Terphenyl-d14			**0.00456**	).00500(		91.2	35.2	135	01/07/2016
Surr: p-Terphenyl-d14			**0.00476**	).00500(		95.2	54.3	104	01/08/2016

Client: Trihydro Corporation **Work Order:** 16010422

Client Project: Water from Soil Vapor System **Report Date:** 13-Jan-16

SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch **115455** **SampType:** **LCS** Units **mg/L**

SampID: LCS-115455

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1-Methylnaphthalene	0.00010		**0.00431**	).00500(	0	86.2	38.8	96.6	01/08/2016
Acenaphthene	0.00010		**0.00378**	).00500(	0	75.6	53.5	111	01/07/2016
Acenaphthene	0.00010		**0.00369**	).00500(	0	73.8	46.6	96.4	01/08/2016
Acenaphthylene	0.00010		**0.00358**	).00500(	0	71.6	48.1	95.6	01/08/2016
Anthracene	0.00010		**0.00363**	).00500(	0	72.6	53.2	95.9	01/08/2016
Anthracene	0.00010		**0.00427**	).00500(	0	85.4	49.4	119	01/07/2016
Benzo(a)anthracene	0.00010		**0.00337**	).00500(	0	67.4	52.5	102	01/08/2016
Benzo(a)pyrene	0.00010		**0.00364**	).00500(	0	72.8	55.1	103	01/08/2016
Benzo(b)fluoranthene	0.00010		**0.00364**	).00500(	0	72.8	53.6	105	01/08/2016
Benzo(g,h,i)perylene	0.00010		**0.00350**	).00500(	0	70.0	46.3	110	01/08/2016
Benzo(k)fluoranthene	0.00010		**0.00388**	).00500(	0	77.6	53.8	104	01/08/2016
Chrysene	0.00010		**0.00358**	).00500(	0	71.6	51	101	01/08/2016
Dibenzo(a,h)anthracene	0.00010		**0.00357**	).00500(	0	71.4	49.4	110	01/08/2016
Fluoranthene	0.00010		**0.00414**	).00500(	0	82.8	54.5	99.5	01/08/2016
Fluoranthene	0.00010		**0.00434**	).00500(	0	86.8	57.1	121	01/07/2016
Fluorene	0.00010		**0.00381**	).00500(	0	76.2	51.1	97.6	01/08/2016
Fluorene	0.00010		**0.00385**	).00500(	0	77.0	53.3	117	01/07/2016
Indeno(1,2,3-cd)pyrene	0.00010		**0.00334**	).00500(	0	66.8	48.6	110	01/08/2016
Naphthalene	0.00010		**0.00371**	).00500(	0	74.2	47.8	109	01/07/2016
Naphthalene	0.00010		**0.00380**	).00500(	0	76.0	39.8	93.1	01/08/2016
Phenanthrene	0.00010		**0.00343**	).00500(	0	68.6	52.2	95.9	01/08/2016
Phenanthrene	0.00010		**0.00392**	).00500(	0	78.4	51.9	119	01/07/2016
Pyrene	0.00010		**0.00443**	).00500(	0	88.6	52.5	124	01/07/2016
Pyrene	0.00010		**0.00394**	).00500(	0	78.8	53.4	99.1	01/08/2016
Surr: 2-Fluorobiphenyl			**0.00368**	).00500(		73.6	44.4	89.6	01/08/2016
Surr: 2-Fluorobiphenyl			**0.00376**	).00500(		75.2	45.5	101	01/07/2016
Surr: Nitrobenzene-d5			**0.00364**	).00500(		72.8	47.2	102	01/07/2016
Surr: Nitrobenzene-d5			**0.00352**	).00500(		70.4	40.9	81.4	01/08/2016
Surr: p-Terphenyl-d14			**0.00413**	).00500(		82.6	54.3	104	01/08/2016
Surr: p-Terphenyl-d14			**0.00444**	).00500(		88.8	54.9	115	01/07/2016

Teklab, Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Trihydro Corporation

Client Project: Water from Soil Vapor System

Work Order: 16010422

Report Date: 13-Jan-16

SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 115455 **SampType:** LCSD Units **mg/L** RPD Limit **40**

SampID: LCSD-115455

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1-Methylnaphthalene	0.00010		**0.00347**	).00500(	0	69.4	0.004310	21.59	01/08/2016
Acenaphthene	0.00010		**0.00377**	).00500(	0	75.4	0.003690	2.14	01/08/2016
Acenaphthene	0.00010		**0.00351**	).00500(	0	70.2	0.003780	7.41	01/07/2016
Acenaphthylene	0.00010		**0.00316**	).00500(	0	63.2	0.003580	12.46	01/08/2016
Anthracene	0.00010		**0.00349**	).00500(	0	69.8	0.003630	3.93	01/08/2016
Anthracene	0.00010		**0.00413**	).00500(	0	82.6	0.004270	3.33	01/07/2016
Benzo(a)anthracene	0.00010		**0.00324**	).00500(	0	64.8	0.003370	3.93	01/08/2016
Benzo(a)pyrene	0.00010		**0.00342**	).00500(	0	68.4	0.003640	6.23	01/08/2016
Benzo(b)fluoranthene	0.00010		**0.00347**	).00500(	0	69.4	0.003640	4.78	01/08/2016
Benzo(g,h,i)perylene	0.00010		**0.00328**	).00500(	0	65.6	0.003500	6.49	01/08/2016
Benzo(k)fluoranthene	0.00010		**0.00358**	).00500(	0	71.6	0.003880	8.04	01/08/2016
Chrysene	0.00010		**0.00345**	).00500(	0	69.0	0.003580	3.70	01/08/2016
Dibenzo(a,h)anthracene	0.00010		**0.00335**	).00500(	0	67.0	0.003570	6.36	01/08/2016
Fluoranthene	0.00010		**0.00423**	).00500(	0	84.6	0.004340	2.57	01/07/2016
Fluoranthene	0.00010		**0.00403**	).00500(	0	80.6	0.004140	2.69	01/08/2016
Fluorene	0.00010		**0.00366**	).00500(	0	73.2	0.003850	5.06	01/07/2016
Fluorene	0.00010		**0.00343**	).00500(	0	68.6	0.003810	10.50	01/08/2016
Indeno(1,2,3-cd)pyrene	0.00010		**0.00335**	).00500(	0	67.0	0.003340	0.30	01/08/2016
Naphthalene	0.00010		**0.00340**	).00500(	0	68.0	0.003710	8.72	01/07/2016
Naphthalene	0.00010		**0.00309**	).00500(	0	61.8	0.003800	20.61	01/08/2016
Phenanthrene	0.00010		**0.00380**	).00500(	0	76.0	0.003920	3.11	01/07/2016
Phenanthrene	0.00010		**0.00336**	).00500(	0	67.2	0.003430	2.06	01/08/2016
Pyrene	0.00010		**0.00432**	).00500(	0	86.4	0.004430	2.51	01/07/2016
Pyrene	0.00010		**0.00358**	).00500(	0	71.6	0.003940	9.57	01/08/2016
Surr: 2-Fluorobiphenyl			**0.00350**	).00500(		70.0			01/07/2016
Surr: 2-Fluorobiphenyl			**0.00305**	).00500(		61.0			01/08/2016
Surr: Nitrobenzene-d5			**0.00344**	).00500(		68.8			01/07/2016
Surr: Nitrobenzene-d5			**0.00281**	).00500(		56.2			01/08/2016
Surr: p-Terphenyl-d14			**0.00397**	).00500(		79.4			01/08/2016
Surr: p-Terphenyl-d14			**0.00442**	).00500(		88.4			01/07/2016

Quality Control Results

http://www.teklabinc.com/

Client: Trihydro Corporation
Client Project: Water from Soil Vapor System

Work Order: 16010422
Report Date: 13-Jan-16

SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 115455 **SampType:** MS Units **mg/L**

SampID: 16010331-003AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1-Methylnaphthalene	0.00010		**0.00374**	).00500(	0	74.8	50	150	01/08/2016
Acenaphthene	0.00010		**0.00404**	).00500(	0	80.8	42.4	117	01/08/2016
Acenaphthylene	0.00010		**0.00340**	).00500(	0	68.0	48.4	133	01/08/2016
Anthracene	0.00010		**0.00356**	).00500(	0	71.2	52.4	115	01/08/2016
Benzo(a)anthracene	0.00010		**0.00334**	).00500(	0	66.8	50.8	105	01/08/2016
Benzo(a)pyrene	0.00010		**0.00349**	).00500(	0	69.8	53.3	126	01/08/2016
Benzo(b)fluoranthene	0.00010		**0.00352**	).00500(	0	70.4	53.5	131	01/08/2016
Benzo(g,h,i)perylene	0.00010		**0.00335**	).00500(	0	67.0	54.6	127	01/08/2016
Benzo(k)fluoranthene	0.00010		**0.00372**	).00500(	0	74.4	56.2	128	01/08/2016
Chrysene	0.00010		**0.00357**	).00500(	0	71.4	54.4	122	01/08/2016
Dibenzo(a,h)anthracene	0.00010		**0.00342**	).00500(	0	68.4	54.8	127	01/08/2016
Fluoranthene	0.00010		**0.00416**	).00500(	0	83.2	54.5	122	01/08/2016
Fluorene	0.00010		**0.00358**	).00500(	0	71.6	47.7	119	01/08/2016
Indeno(1,2,3-cd)pyrene	0.00010		**0.00346**	).00500(	0	69.2	53.2	125	01/08/2016
Naphthalene	0.00010		**0.00332**	).00500(	0	66.4	36.3	107	01/08/2016
Phenanthrene	0.00010		**0.00352**	).00500(	0	70.4	51	112	01/08/2016
Pyrene	0.00010		**0.00374**	).00500(	0	74.8	55.9	121	01/08/2016
Surr: 2-Fluorobiphenyl			**0.00327**	).00500(		65.4	10	143	01/08/2016
Surr: Nitrobenzene-d5			**0.00282**	).00500(		56.4	10	166	01/08/2016
Surr: p-Terphenyl-d14			**0.00342**	).00500(		68.4	10	137	01/08/2016

Batch 115455 **SampType:** MSD Units **mg/L** RPD Limit **40**

SampID: 16010331-003AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1-Methylnaphthalene	0.00010		**0.00347**	).00500(	0	69.4	0.003740	7.49	01/08/2016
Acenaphthene	0.00010		**0.00387**	).00500(	0	77.4	0.004040	4.30	01/08/2016
Acenaphthylene	0.00010		**0.00328**	).00500(	0	65.6	0.003400	3.59	01/08/2016
Anthracene	0.00010		**0.00356**	).00500(	0	71.2	0.003560	0.00	01/08/2016
Benzo(a)anthracene	0.00010		**0.00342**	).00500(	0	68.4	0.003340	2.37	01/08/2016
Benzo(a)pyrene	0.00010		**0.00363**	).00500(	0	72.6	0.003490	3.93	01/08/2016
Benzo(b)fluoranthene	0.00010		**0.00367**	).00500(	0	73.4	0.003520	4.17	01/08/2016
Benzo(g,h,i)perylene	0.00010		**0.00350**	).00500(	0	70.0	0.003350	4.38	01/08/2016
Benzo(k)fluoranthene	0.00010		**0.00380**	).00500(	0	76.0	0.003720	2.13	01/08/2016
Chrysene	0.00010		**0.00367**	).00500(	0	73.4	0.003570	2.76	01/08/2016
Dibenzo(a,h)anthracene	0.00010		**0.00353**	).00500(	0	70.6	0.003420	3.17	01/08/2016
Fluoranthene	0.00010		**0.00424**	).00500(	0	84.8	0.004160	1.90	01/08/2016
Fluorene	0.00010		**0.00355**	).00500(	0	71.0	0.003580	0.84	01/08/2016
Indeno(1,2,3-cd)pyrene	0.00010		**0.00355**	).00500(	0	71.0	0.003460	2.57	01/08/2016
Naphthalene	0.00010		**0.00307**	).00500(	0	61.4	0.003320	7.82	01/08/2016
Phenanthrene	0.00010		**0.00348**	).00500(	0	69.6	0.003520	1.14	01/08/2016
Pyrene	0.00010		**0.00383**	).00500(	0	76.6	0.003740	2.38	01/08/2016
Surr: 2-Fluorobiphenyl			**0.00308**	).00500(		61.6			01/08/2016
Surr: Nitrobenzene-d5			**0.00281**	).00500(		56.2			01/08/2016
Surr: p-Terphenyl-d14			**0.00378**	).00500(		75.6			01/08/2016

Client: Trihydro Corporation **Work Order:** 16010422

Client Project: Water from Soil Vapor System **Report Date:** 13-Jan-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 115516 **SampType:** MBLK Units µg/L

SampID: MBLK-T160108-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1,2-Tetrachloroethane	5.0		ND						01/08/2016
1,1,1-Trichloroethane	5.0		ND						01/08/2016
1,1,2,2-Tetrachloroethane	5.0		ND						01/08/2016
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0		ND						01/08/2016
1,1,2-Trichloroethane	5.0		ND						01/08/2016
1,1-Dichloro-2-propanone	50.0		ND						01/08/2016
1,1-Dichloroethane	5.0		ND						01/08/2016
1,1-Dichloroethene	5.0		ND						01/08/2016
1,1-Dichloropropene	5.0		ND						01/08/2016
1,2,3-Trichlorobenzene	5.0		ND						01/08/2016
1,2,3-Trichloropropane	5.0		ND						01/08/2016
1,2,3-Trimethylbenzene	5.0		ND						01/08/2016
1,2,4-Trichlorobenzene	5.0		ND						01/08/2016
1,2,4-Trimethylbenzene	5.0		ND						01/08/2016
1,2-Dibromo-3-chloropropane	5.0		ND						01/08/2016
1,2-Dibromoethane	5.0		ND						01/08/2016
1,2-Dichlorobenzene	5.0		ND						01/08/2016
1,2-Dichloroethane	5.0		ND						01/08/2016
1,2-Dichloropropane	5.0		ND						01/08/2016
1,3,5-Trimethylbenzene	5.0		ND						01/08/2016
1,3-Dichlorobenzene	5.0		ND						01/08/2016
1,3-Dichloropropane	5.0		ND						01/08/2016
1,4-Dichlorobenzene	5.0		ND						01/08/2016
1-Chlorobutane	5.0		ND						01/08/2016
2,2-Dichloropropane	5.0		ND						01/08/2016
2-Butanone	25.0		ND						01/08/2016
2-Chloroethyl vinyl ether	20.0		ND						01/08/2016
2-Chlorotoluene	5.0		ND						01/08/2016
2-Hexanone	25.0		ND						01/08/2016
2-Nitropropane	50.0		ND						01/08/2016
4-Chlorotoluene	5.0		ND						01/08/2016
4-Methyl-2-pentanone	25.0		ND						01/08/2016
Acetone	25.0		ND						01/08/2016
Acetonitrile	50.0		ND						01/08/2016
Acrolein	100		ND						01/08/2016
Acrylonitrile	5.0		ND						01/08/2016
Allyl chloride	5.0		ND						01/08/2016
Benzene	2.0		ND						01/08/2016
Bromobenzene	5.0		ND						01/08/2016
Bromochloromethane	5.0		ND						01/08/2016
Bromodichloromethane	5.0		ND						01/08/2016
Bromoform	5.0		ND						01/08/2016
Bromomethane	10.0		ND						01/08/2016
Carbon disulfide	5.0		ND						01/08/2016
Carbon tetrachloride	5.0		ND						01/08/2016
Chlorobenzene	5.0		ND						01/08/2016
Chloroethane	10.0		ND						01/08/2016

Client: Trihydro Corporation **Work Order:** 16010422

Client Project: Water from Soil Vapor System **Report Date:** 13-Jan-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 115516 **SampType:** MBLK Units **µg/L**

SampID: MBLK-T160108-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloroform	5.0		ND						01/08/2016
Chloromethane	10.0		ND						01/08/2016
Chloroprene	20.0		ND						01/08/2016
cis-1,2-Dichloroethene	5.0		ND						01/08/2016
cis-1,3-Dichloropropene	5.0		ND						01/08/2016
cis-1,4-Dichloro-2-butene	5.0		ND						01/08/2016
Cyclohexanone	50.0		ND						01/08/2016
Dibromochloromethane	5.0		ND						01/08/2016
Dibromomethane	5.0		ND						01/08/2016
Dichlorodifluoromethane	10.0		ND						01/08/2016
Ethyl acetate	10.0		ND						01/08/2016
Ethyl ether	5.0		ND						01/08/2016
Ethyl methacrylate	5.0		ND						01/08/2016
Ethylbenzene	5.0		ND						01/08/2016
Hexachlorobutadiene	5.0		ND						01/08/2016
Hexachloroethane	10.0		ND						01/08/2016
Iodomethane	5.0		ND						01/08/2016
Isopropylbenzene	5.0		ND						01/08/2016
m,p-Xylenes	5.0		ND						01/08/2016
Methacrylonitrile	10.0		ND						01/08/2016
Methyl Methacrylate	5.0		ND						01/08/2016
Methyl tert-butyl ether	2.0		ND						01/08/2016
Methylacrylate	10.0		ND						01/08/2016
Methylene chloride	5.0		ND						01/08/2016
Naphthalene	10.0		ND						01/08/2016
n-Butyl acetate	25.0		ND						01/08/2016
n-Butylbenzene	5.0		ND						01/08/2016
n-Heptane	20.0		ND						01/08/2016
n-Hexane	20.0		ND						01/08/2016
Nitrobenzene	50.0		ND						01/08/2016
n-Propylbenzene	5.0		ND						01/08/2016
o-Xylene	5.0		ND						01/08/2016
Pentachloroethane	20.0		ND						01/08/2016
p-Isopropyltoluene	5.0		ND						01/08/2016
Propionitrile	50.0		ND						01/08/2016
sec-Butylbenzene	5.0		ND						01/08/2016
Styrene	5.0		ND						01/08/2016
tert-Butylbenzene	5.0		ND						01/08/2016
Tetrachloroethene	5.0		ND						01/08/2016
Tetrahydrofuran	20.0		ND						01/08/2016
Toluene	5.0		ND						01/08/2016
trans-1,2-Dichloroethene	5.0		ND						01/08/2016
trans-1,3-Dichloropropene	5.0		ND						01/08/2016
trans-1,4-Dichloro-2-butene	10.0		ND						01/08/2016
Trichloroethene	5.0		ND						01/08/2016
Trichlorofluoromethane	5.0		ND						01/08/2016
Vinyl acetate	10.0		ND						01/08/2016

Client: Trihydro Corporation **Work Order:** 16010422

Client Project: Water from Soil Vapor System **Report Date:** 13-Jan-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch **115516** **SampType:** **MBLK** Units **µg/L**

SampID: MBLK-T160108-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Vinyl chloride	2.0		**ND**						01/08/2016
Surr: 1,2-Dichloroethane-d4			**49.9**	50.00		99.9	74.7	129	01/08/2016
Surr: 4-Bromofluorobenzene			**51.2**	50.00		102.4	86	119	01/08/2016
Surr: Dibromofluoromethane			**48.7**	50.00		97.5	81.7	123	01/08/2016
Surr: Toluene-d8			**49.8**	50.00		99.5	84.3	114	01/08/2016

Teklab, Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Trihydro Corporation

Client Project: Water from Soil Vapor System

Work Order: 16010422

Report Date: 13-Jan-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 115516 **SampType:** LCSD Units **µg/L** RPD Limit **40**

SampID: LCSD-T160108-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1,1,2-Tetrachloroethane	5.0		**51.7**	50.00	0	103.4	55.06	6.33	01/08/2016
1,1,1-Trichloroethane	5.0		**49.4**	50.00	0	98.8	53.32	7.67	01/08/2016
1,1,2,2-Tetrachloroethane	5.0		**50.0**	50.00	0	100.0	53.15	6.09	01/08/2016
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0		**47.4**	50.00	0	94.9	50.02	5.32	01/08/2016
1,1,2-Trichloroethane	5.0		**49.6**	50.00	0	99.3	52.75	6.05	01/08/2016
1,1-Dichloro-2-propanone	50.0		**127**	125.0	0	101.9	132.6	3.96	01/08/2016
1,1-Dichloroethane	5.0		**53.0**	50.00	0	106.0	56.17	5.85	01/08/2016
1,1-Dichloroethene	5.0		**49.4**	50.00	0	98.9	52.44	5.91	01/08/2016
1,1-Dichloropropene	5.0		**49.4**	50.00	0	98.9	52.29	5.60	01/08/2016
1,2,3-Trichlorobenzene	5.0		**49.1**	50.00	0	98.3	52.42	6.48	01/08/2016
1,2,3-Trichloropropane	5.0		**47.3**	50.00	0	94.6	50.02	5.61	01/08/2016
1,2,3-Trimethylbenzene	5.0		**49.7**	50.00	0	99.4	52.84	6.10	01/08/2016
1,2,4-Trichlorobenzene	5.0		**49.2**	50.00	0	98.4	52.33	6.13	01/08/2016
1,2,4-Trimethylbenzene	5.0		**50.6**	50.00	0	101.1	54.23	7.00	01/08/2016
1,2-Dibromo-3-chloropropane	5.0		**48.6**	50.00	0	97.3	51.75	6.18	01/08/2016
1,2-Dibromoethane	5.0		**50.0**	50.00	0	99.9	52.83	5.58	01/08/2016
1,2-Dichlorobenzene	5.0		**46.9**	50.00	0	93.8	49.77	5.98	01/08/2016
1,2-Dichloroethane	5.0		**48.6**	50.00	0	97.3	52.18	7.02	01/08/2016
1,2-Dichloropropane	5.0		**48.7**	50.00	0	97.5	52.07	6.63	01/08/2016
1,3,5-Trimethylbenzene	5.0		**50.6**	50.00	0	101.1	54.11	6.80	01/08/2016
1,3-Dichlorobenzene	5.0		**48.6**	50.00	0	97.3	52.05	6.77	01/08/2016
1,3-Dichloropropane	5.0		**49.2**	50.00	0	98.4	52.02	5.59	01/08/2016
1,4-Dichlorobenzene	5.0		**47.7**	50.00	0	95.4	50.80	6.27	01/08/2016
1-Chlorobutane	5.0		**48.8**	50.00	0	97.5	52.46	7.29	01/08/2016
2,2-Dichloropropane	5.0		**53.9**	50.00	0	107.9	57.85	7.01	01/08/2016
2-Butanone	25.0		**125**	125.0	0	100.1	135.9	8.21	01/08/2016
2-Chloroethyl vinyl ether	20.0		**53.9**	50.00	0	107.8	57.36	6.20	01/08/2016
2-Chlorotoluene	5.0		**49.2**	50.00	0	98.5	52.76	6.92	01/08/2016
2-Hexanone	25.0		**129**	125.0	0	103.1	138.9	7.53	01/08/2016
2-Nitropropane	50.0		**549**	500.0	0	109.7	584.1	6.26	01/08/2016
4-Chlorotoluene	5.0		**49.9**	50.00	0	99.8	53.00	6.05	01/08/2016
4-Methyl-2-pentanone	25.0		**125**	125.0	0	100.2	132.9	5.86	01/08/2016
Acetone	25.0		**133**	125.0	0	106.7	147.9	10.29	01/08/2016
Acetonitrile	50.0		**502**	500.0	0	100.4	521.9	3.85	01/08/2016
Acrolein	100		**480**	500.0	0	96.0	497.4	3.60	01/08/2016
Acrylonitrile	5.0		**54.0**	50.00	0	107.9	57.22	5.85	01/08/2016
Allyl chloride	5.0		**54.7**	50.00	0	109.4	59.14	7.84	01/08/2016
Benzene	2.0		**48.3**	50.00	0	96.5	51.35	6.20	01/08/2016
Bromobenzene	5.0		**49.4**	50.00	0	98.9	53.47	7.83	01/08/2016
Bromochloromethane	5.0		**48.6**	50.00	0	97.2	51.92	6.63	01/08/2016
Bromodichloromethane	5.0		**50.5**	50.00	0	101.0	54.39	7.38	01/08/2016
Bromoform	5.0		**52.6**	50.00	0	105.1	55.38	5.23	01/08/2016
Bromomethane	10.0		**49.3**	50.00	0	98.5	49.84	1.17	01/08/2016
Carbon disulfide	5.0		**48.5**	50.00	0	97.1	51.05	5.06	01/08/2016
Carbon tetrachloride	5.0		**51.1**	50.00	0	102.2	54.30	6.05	01/08/2016
Chlorobenzene	5.0		**47.8**	50.00	0	95.5	50.68	5.93	01/08/2016
Chloroethane	10.0		**46.2**	50.00	0	92.3	49.37	6.74	01/08/2016

Teklab, Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Trihydro Corporation

Client Project: Water from Soil Vapor System

Work Order: 16010422

Report Date: 13-Jan-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 115516 **SampType:** LCSD Units **µg/L** RPD Limit **40**

SampID: LCSD-T160108-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloroform	5.0		**48.4**	50.00	0	96.9	51.97	7.03	01/08/2016
Chloromethane	10.0		**47.9**	50.00	0	95.8	51.48	7.18	01/08/2016
Chloroprene	20.0		**48.8**	50.00	0	97.6	51.85	6.10	01/08/2016
cis-1,2-Dichloroethene	5.0		**50.4**	50.00	0	100.7	53.66	6.34	01/08/2016
cis-1,3-Dichloropropene	5.0		**51.8**	50.00	0	103.6	55.60	7.04	01/08/2016
cis-1,4-Dichloro-2-butene	5.0		**57.5**	50.00	0	114.9	60.56	5.25	01/08/2016
Cyclohexanone	50.0		**509**	500.0	0	101.9	511.5	0.42	01/08/2016
Dibromochloromethane	5.0		**52.3**	50.00	0	104.6	55.69	6.32	01/08/2016
Dibromomethane	5.0		**47.2**	50.00	0	94.5	50.53	6.73	01/08/2016
Dichlorodifluoromethane	10.0		**41.7**	50.00	0	83.3	43.63	4.62	01/08/2016
Ethyl acetate	10.0		**48.0**	50.00	0	96.1	51.99	7.92	01/08/2016
Ethyl ether	5.0		**47.5**	50.00	0	94.9	50.36	5.91	01/08/2016
Ethyl methacrylate	5.0		**52.0**	50.00	0	103.9	55.08	5.81	01/08/2016
Ethylbenzene	5.0		**47.9**	50.00	0	95.9	51.38	6.95	01/08/2016
Hexachlorobutadiene	5.0		**49.7**	50.00	0	99.4	52.47	5.44	01/08/2016
Hexachloroethane	10.0		**50.8**	50.00	0	101.5	54.84	7.73	01/08/2016
Iodomethane	5.0		**38.7**	50.00	0	77.3	39.08	1.05	01/08/2016
Isopropylbenzene	5.0		**52.1**	50.00	0	104.3	55.76	6.73	01/08/2016
m,p-Xylenes	5.0		**99.7**	100.0	0	99.7	106.4	6.50	01/08/2016
Methacrylonitrile	10.0		**49.7**	50.00	0	99.4	52.49	5.44	01/08/2016
Methyl Methacrylate	5.0		**52.5**	50.00	0	105.0	56.23	6.88	01/08/2016
Methyl tert-butyl ether	2.0		**49.6**	50.00	0	99.3	53.83	8.12	01/08/2016
Methylacrylate	10.0		**52.5**	50.00	0	105.0	54.61	3.94	01/08/2016
Methylene chloride	5.0		**48.6**	50.00	0	97.2	51.89	6.53	01/08/2016
Naphthalene	10.0		**51.8**	50.00	0	103.5	54.29	4.75	01/08/2016
n-Butyl acetate	25.0		**51.3**	50.00	0	102.6	55.33	7.52	01/08/2016
n-Butylbenzene	5.0		**49.7**	50.00	0	99.4	52.89	6.18	01/08/2016
n-Heptane	20.0		**55.4**	50.00	0	110.9	59.45	6.98	01/08/2016
n-Hexane	20.0		**52.4**	50.00	0	104.8	55.85	6.39	01/08/2016
Nitrobenzene	50.0		**503**	500.0	0	100.7	540.1	7.05	01/08/2016
n-Propylbenzene	5.0		**50.4**	50.00	0	100.8	53.60	6.19	01/08/2016
o-Xylene	5.0		**47.8**	50.00	0	95.7	51.39	7.16	01/08/2016
Pentachloroethane	20.0		**51.3**	50.00	0	102.6	54.92	6.82	01/08/2016
p-Isopropyltoluene	5.0		**51.8**	50.00	0	103.5	55.11	6.29	01/08/2016
Propionitrile	50.0		**499**	500.0	0	99.9	527.5	5.46	01/08/2016
sec-Butylbenzene	5.0		**51.0**	50.00	0	102.1	54.49	6.56	01/08/2016
Styrene	5.0		**52.7**	50.00	0	105.4	56.42	6.84	01/08/2016
tert-Butylbenzene	5.0		**50.2**	50.00	0	100.3	53.50	6.44	01/08/2016
Tetrachloroethene	5.0		**49.7**	50.00	0	99.4	52.46	5.42	01/08/2016
Tetrahydrofuran	20.0		**48.0**	50.00	0	96.0	51.13	6.29	01/08/2016
Toluene	5.0		**47.2**	50.00	0	94.5	50.85	7.34	01/08/2016
trans-1,2-Dichloroethene	5.0		**49.6**	50.00	0	99.3	53.32	7.17	01/08/2016
trans-1,3-Dichloropropene	5.0		**53.4**	50.00	0	106.8	56.84	6.24	01/08/2016
trans-1,4-Dichloro-2-butene	10.0		**52.1**	50.00	0	104.2	56.58	8.23	01/08/2016
Trichloroethene	5.0		**47.6**	50.00	0	95.1	50.81	6.59	01/08/2016
Trichlorofluoromethane	5.0		**49.5**	50.00	0	99.0	52.96	6.73	01/08/2016
Vinyl acetate	10.0		**54.5**	50.00	0	108.9	60.93	11.20	01/08/2016

Client: Trihydro Corporation

Client Project: Water from Soil Vapor System

Work Order: 16010422

Report Date: 13-Jan-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch **115516** **SampType:** **LCSD** Units **µg/L** RPD Limit **40**

SampID: LCSD-T160108-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Vinyl chloride	2.0		**49.3**	50.00	0	98.5	52.57	6.48	01/08/2016
Surr: 1,2-Dichloroethane-d4			**50.4**	50.00		100.7			01/08/2016
Surr: 4-Bromofluorobenzene			**50.4**	50.00		100.8			01/08/2016
Surr: Dibromofluoromethane			**49.7**	50.00		99.3			01/08/2016
Surr: Toluene-d8			**49.7**	50.00		99.3			01/08/2016

Client: Trihydro Corporation **Work Order:** 16010422

Client Project: Water from Soil Vapor System **Report Date:** 13-Jan-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 115516 **SampType:** LCS Units **µg/L**

SampID: LCS-T160108-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1,2-Tetrachloroethane	5.0		**55.1**	50.00	0	110.1	81.9	115	01/08/2016
1,1,1-Trichloroethane	5.0		**53.3**	50.00	0	106.6	79.4	124	01/08/2016
1,1,2,2-Tetrachloroethane	5.0		**53.2**	50.00	0	106.3	74.7	116	01/08/2016
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0		**50.0**	50.00	0	100.0	72.9	121	01/08/2016
1,1,2-Trichloroethane	5.0		**52.8**	50.00	0	105.5	80.8	111	01/08/2016
1,1-Dichloro-2-propanone	50.0		**133**	125.0	0	106.1	66.3	130	01/08/2016
1,1-Dichloroethane	5.0		**56.2**	50.00	0	112.3	79.4	114	01/08/2016
1,1-Dichloroethene	5.0		**52.4**	50.00	0	104.9	74.1	117	01/08/2016
1,1-Dichloropropene	5.0		**52.3**	50.00	0	104.6	81.7	116	01/08/2016
1,2,3-Trichlorobenzene	5.0		**52.4**	50.00	0	104.8	79.7	118	01/08/2016
1,2,3-Trichloropropane	5.0		**50.0**	50.00	0	100.0	77.3	112	01/08/2016
1,2,3-Trimethylbenzene	5.0		**52.8**	50.00	0	105.7	79.9	119	01/08/2016
1,2,4-Trichlorobenzene	5.0		**52.3**	50.00	0	104.7	79.3	118	01/08/2016
1,2,4-Trimethylbenzene	5.0		**54.2**	50.00	0	108.5	78.7	115	01/08/2016
1,2-Dibromo-3-chloropropane	5.0		**51.8**	50.00	0	103.5	76	122	01/08/2016
1,2-Dibromoethane	5.0		**52.8**	50.00	0	105.7	80.8	114	01/08/2016
1,2-Dichlorobenzene	5.0		**49.8**	50.00	0	99.5	78.3	112	01/08/2016
1,2-Dichloroethane	5.0		**52.2**	50.00	0	104.4	70.6	118	01/08/2016
1,2-Dichloropropane	5.0		**52.1**	50.00	0	104.1	79.6	113	01/08/2016
1,3,5-Trimethylbenzene	5.0		**54.1**	50.00	0	108.2	77.5	115	01/08/2016
1,3-Dichlorobenzene	5.0		**52.0**	50.00	0	104.1	78.6	117	01/08/2016
1,3-Dichloropropane	5.0		**52.0**	50.00	0	104.0	78.8	112	01/08/2016
1,4-Dichlorobenzene	5.0		**50.8**	50.00	0	101.6	77.8	114	01/08/2016
1-Chlorobutane	5.0		**52.5**	50.00	0	104.9	78.6	115	01/08/2016
2,2-Dichloropropane	5.0		**57.8**	50.00	0	115.7	74.9	130	01/08/2016
2-Butanone	25.0		**136**	125.0	0	108.7	70.7	136	01/08/2016
2-Chloroethyl vinyl ether	20.0		**57.4**	50.00	0	114.7	52.5	145	01/08/2016
2-Chlorotoluene	5.0		**52.8**	50.00	0	105.5	77.4	114	01/08/2016
2-Hexanone	25.0		**139**	125.0	0	111.2	73.3	125	01/08/2016
2-Nitropropane	50.0		**584**	500.0	0	116.8	67.3	139	01/08/2016
4-Chlorotoluene	5.0		**53.0**	50.00	0	106.0	78.3	115	01/08/2016
4-Methyl-2-pentanone	25.0		**133**	125.0	0	106.3	76.3	122	01/08/2016
Acetone	25.0		**148**	125.0	0	118.3	56.4	147	01/08/2016
Acetonitrile	50.0		**522**	500.0	0	104.4	59.3	129	01/08/2016
Acrolein	100		**497**	500.0	0	99.5	1	201	01/08/2016
Acrylonitrile	5.0		**57.2**	50.00	0	114.4	74.1	128	01/08/2016
Allyl chloride	5.0		**59.1**	50.00	0	118.3	71.5	123	01/08/2016
Benzene	2.0		**51.4**	50.00	0	102.7	80	114	01/08/2016
Bromobenzene	5.0		**53.5**	50.00	0	106.9	73.2	118	01/08/2016
Bromochloromethane	5.0		**51.9**	50.00	0	103.8	73.3	121	01/08/2016
Bromodichloromethane	5.0		**54.4**	50.00	0	108.8	81.6	121	01/08/2016
Bromoform	5.0		**55.4**	50.00	0	110.8	83.1	127	01/08/2016
Bromomethane	10.0		**49.8**	50.00	0	99.7	44.4	154	01/08/2016
Carbon disulfide	5.0		**51.0**	50.00	0	102.1	73.2	118	01/08/2016
Carbon tetrachloride	5.0		**54.3**	50.00	0	108.6	79.4	130	01/08/2016
Chlorobenzene	5.0		**50.7**	50.00	0	101.4	81.4	110	01/08/2016
Chloroethane	10.0		**49.4**	50.00	0	98.7	52.1	137	01/08/2016

Teklab, Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Trihydro Corporation

Client Project: Water from Soil Vapor System

Work Order: 16010422

Report Date: 13-Jan-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 115516 **SampType:** LCS Units **µg/L**

SampID: LCS-T160108-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloroform	5.0		**52.0**	50.00	0	103.9	82.7	116	01/08/2016
Chloromethane	10.0		**51.5**	50.00	0	103.0	48.2	144	01/08/2016
Chloroprene	20.0		**51.8**	50.00	0	103.7	80.6	126	01/08/2016
cis-1,2-Dichloroethene	5.0		**53.7**	50.00	0	107.3	78.2	116	01/08/2016
cis-1,3-Dichloropropene	5.0		**55.6**	50.00	0	111.2	83	119	01/08/2016
cis-1,4-Dichloro-2-butene	5.0		**60.6**	50.00	0	121.1	60.7	137	01/08/2016
Cyclohexanone	50.0		**512**	500.0	0	102.3	54.2	145	01/08/2016
Dibromochloromethane	5.0		**55.7**	50.00	0	111.4	81.2	121	01/08/2016
Dibromomethane	5.0		**50.5**	50.00	0	101.1	78.3	118	01/08/2016
Dichlorodifluoromethane	10.0		**43.6**	50.00	0	87.3	20.6	154	01/08/2016
Ethyl acetate	10.0		**52.0**	50.00	0	104.0	73.1	116	01/08/2016
Ethyl ether	5.0		**50.4**	50.00	0	100.7	75.2	109	01/08/2016
Ethyl methacrylate	5.0		**55.1**	50.00	0	110.2	80.1	113	01/08/2016
Ethylbenzene	5.0		**51.4**	50.00	0	102.8	77.2	113	01/08/2016
Hexachlorobutadiene	5.0		**52.5**	50.00	0	104.9	77.3	123	01/08/2016
Hexachloroethane	10.0		**54.8**	50.00	0	109.7	74.6	117	01/08/2016
Iodomethane	5.0		**39.1**	50.00	0	78.2	61.3	140	01/08/2016
Isopropylbenzene	5.0		**55.8**	50.00	0	111.5	81.3	114	01/08/2016
m,p-Xylenes	5.0		**106**	100.0	0	106.4	79.6	113	01/08/2016
Methacrylonitrile	10.0		**52.5**	50.00	0	105.0	77.2	125	01/08/2016
Methyl Methacrylate	5.0		**56.2**	50.00	0	112.5	74.2	121	01/08/2016
Methyl tert-butyl ether	2.0		**53.8**	50.00	0	107.7	76.8	117	01/08/2016
Methylacrylate	10.0		**54.6**	50.00	0	109.2	78	124	01/08/2016
Methylene chloride	5.0		**51.9**	50.00	0	103.8	74.1	114	01/08/2016
Naphthalene	10.0		**54.3**	50.00	0	108.6	77.9	122	01/08/2016
n-Butyl acetate	25.0		**55.3**	50.00	0	110.7	74	120	01/08/2016
n-Butylbenzene	5.0		**52.9**	50.00	0	105.8	71.1	120	01/08/2016
n-Heptane	20.0		**59.4**	50.00	0	118.9	67.4	129	01/08/2016
n-Hexane	20.0		**55.8**	50.00	0	111.7	68.4	126	01/08/2016
Nitrobenzene	50.0		**540**	500.0	0	108.0	37.9	181	01/08/2016
n-Propylbenzene	5.0		**53.6**	50.00	0	107.2	74.6	118	01/08/2016
o-Xylene	5.0		**51.4**	50.00	0	102.8	80.1	111	01/08/2016
Pentachloroethane	20.0		**54.9**	50.00	0	109.8	78.8	117	01/08/2016
p-Isopropyltoluene	5.0		**55.1**	50.00	0	110.2	77.6	118	01/08/2016
Propionitrile	50.0		**528**	500.0	0	105.5	72.9	137	01/08/2016
sec-Butylbenzene	5.0		**54.5**	50.00	0	109.0	74.5	119	01/08/2016
Styrene	5.0		**56.4**	50.00	0	112.8	83.4	113	01/08/2016
tert-Butylbenzene	5.0		**53.5**	50.00	0	107.0	75.9	114	01/08/2016
Tetrachloroethene	5.0		**52.5**	50.00	0	104.9	72.5	125	01/08/2016
Tetrahydrofuran	20.0		**51.1**	50.00	0	102.3	69.6	125	01/08/2016
Toluene	5.0		**50.8**	50.00	0	101.7	77.5	113	01/08/2016
trans-1,2-Dichloroethene	5.0		**53.3**	50.00	0	106.6	79	114	01/08/2016
trans-1,3-Dichloropropene	5.0		**56.8**	50.00	0	113.7	78	115	01/08/2016
trans-1,4-Dichloro-2-butene	10.0		**56.6**	50.00	0	113.2	63.3	128	01/08/2016
Trichloroethene	5.0		**50.8**	50.00	0	101.6	84.4	114	01/08/2016
Trichlorofluoromethane	5.0		**53.0**	50.00	0	105.9	75.2	132	01/08/2016
Vinyl acetate	10.0		**60.9**	50.00	0	121.9	64.5	127	01/08/2016

Client: Trihydro Corporation

Client Project: Water from Soil Vapor System

Work Order: 16010422

Report Date: 13-Jan-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 115516 **SampType:** LCS Units **µg/L**

SampID: LCS-T160108-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Vinyl chloride	2.0		**52.6**	50.00	0	105.1	58	134	01/08/2016
Surr: 1,2-Dichloroethane-d4			**50.6**	50.00		101.2	74.7	129	01/08/2016
Surr: 4-Bromofluorobenzene			**50.0**	50.00		100.0	86	119	01/08/2016
Surr: Dibromofluoromethane			**50.0**	50.00		100.1	81.7	123	01/08/2016
Surr: Toluene-d8			**50.0**	50.00		100.0	84.1	114	01/08/2016

Batch 115516 **SampType:** MS Units **mg/L**

SampID: 16010254-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1-Dichloroethene	0.500		**4.57**	5.000	0	91.5	61.3	123	01/08/2016
1,2-Dichloroethane	0.500		**4.82**	5.000	0	96.4	71.5	116	01/08/2016
1,4-Dichlorobenzene	0.500		**4.74**	5.000	0	94.8	76.9	113	01/08/2016
2-Butanone	2.50		**4.80**	5.000	0	96.0	64.1	132	01/08/2016
Benzene	0.200		**4.80**	5.000	0	96.1	81.5	113	01/08/2016
Carbon tetrachloride	0.500		**4.89**	5.000	0	97.8	55.5	125	01/08/2016
Chlorobenzene	0.500		**4.92**	5.000	0	98.4	81.8	111	01/08/2016
Chloroform	0.500		**4.62**	5.000	0	92.3	81	115	01/08/2016
Tetrachloroethene	0.500		**4.85**	5.000	0	97.0	61.7	114	01/08/2016
Trichloroethene	0.500		**4.84**	5.000	0	96.8	74.4	117	01/08/2016
Vinyl chloride	0.200		**4.17**	5.000	0	83.4	45.7	130	01/08/2016
Surr: 1,2-Dichloroethane-d4			**4.99**	5.000		99.8	74.7	129	01/08/2016
Surr: 4-Bromofluorobenzene			**5.04**	5.000		100.8	86	119	01/08/2016
Surr: Dibromofluoromethane			**4.88**	5.000		97.6	81.7	123	01/08/2016
Surr: Toluene-d8			**4.95**	5.000		99.0	84.3	114	01/08/2016

Batch 115516 **SampType:** MS Units **mg/L**

SampID: 16010301-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1-Dichloroethene	0.500		**4.76**	5.000	0	95.1	61.3	123	01/08/2016
1,2-Dichloroethane	0.500		**4.81**	5.000	0	96.2	71.5	116	01/08/2016
1,4-Dichlorobenzene	0.500		**4.76**	5.000	0	95.2	76.9	113	01/08/2016
2-Butanone	2.50		**4.82**	5.000	0	96.3	64.1	132	01/08/2016
Benzene	0.200		**4.84**	5.000	0	96.8	81.5	113	01/08/2016
Carbon tetrachloride	0.500		**4.88**	5.000	0	97.6	55.5	125	01/08/2016
Chlorobenzene	0.500		**4.96**	5.000	0	99.2	81.8	111	01/08/2016
Chloroform	0.500		**4.65**	5.000	0	93.0	81	115	01/08/2016
Tetrachloroethene	0.500		**4.89**	5.000	0	97.8	61.7	114	01/08/2016
Trichloroethene	0.500		**4.82**	5.000	0	96.5	74.4	117	01/08/2016
Vinyl chloride	0.200		**4.34**	5.000	0	86.7	45.7	130	01/08/2016
Surr: 1,2-Dichloroethane-d4			**5.04**	5.000		100.9	74.7	129	01/08/2016
Surr: 4-Bromofluorobenzene			**4.96**	5.000		99.2	86	119	01/08/2016
Surr: Dibromofluoromethane			**4.88**	5.000		97.6	81.7	123	01/08/2016
Surr: Toluene-d8			**4.95**	5.000		99.0	84.3	114	01/08/2016

Client: Trihydro Corporation | **Work Order:** 16010422

Client Project: Water from Soil Vapor System | **Report Date:** 13-Jan-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 115516 **SampType:** MS Units **mg/L**

SampID: 16010303-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1-Dichloroethene	0.500		**4.53**	5.000	0	90.7	61.3	123	01/08/2016
1,2-Dichloroethane	0.500		**4.69**	5.000	0	93.8	71.5	116	01/08/2016
1,4-Dichlorobenzene	0.500		**4.76**	5.000	0	95.1	76.9	113	01/08/2016
2-Butanone	2.50		**4.79**	5.000	0	95.8	64.1	132	01/08/2016
Benzene	0.200		**4.69**	5.000	0	93.8	81.5	113	01/08/2016
Carbon tetrachloride	0.500		**4.70**	5.000	0	94.0	55.5	125	01/08/2016
Chlorobenzene	0.500		**4.88**	5.000	0	97.5	81.8	111	01/08/2016
Chloroform	0.500		**4.50**	5.000	0	90.1	81	115	01/08/2016
Tetrachloroethene	0.500		**4.77**	5.000	0	95.4	61.7	114	01/08/2016
Trichloroethene	0.500		**4.72**	5.000	0	94.5	74.4	117	01/08/2016
Vinyl chloride	0.200		**4.19**	5.000	0	83.8	45.7	130	01/08/2016
Surr: 1,2-Dichloroethane-d4			**4.94**	5.000		98.8	74.7	129	01/08/2016
Surr: 4-Bromofluorobenzene			**4.99**	5.000		99.7	86	119	01/08/2016
Surr: Dibromofluoromethane			**4.83**	5.000		96.7	81.7	123	01/08/2016
Surr: Toluene-d8			**4.92**	5.000		98.3	84.3	114	01/08/2016

Batch 115516 **SampType:** MS Units **mg/L**

SampID: 16010307-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1-Dichloroethene	0.500		**4.36**	5.000	0	87.2	61.3	123	01/08/2016
1,2-Dichloroethane	0.500		**4.70**	5.000	0	94.0	71.5	116	01/08/2016
1,4-Dichlorobenzene	0.500		**4.67**	5.000	0	93.4	76.9	113	01/08/2016
2-Butanone	2.50		**4.71**	5.000	0	94.2	64.1	132	01/08/2016
Benzene	0.200		**4.63**	5.000	0	92.6	81.5	113	01/08/2016
Carbon tetrachloride	0.500		**4.54**	5.000	0	90.8	55.5	125	01/08/2016
Chlorobenzene	0.500		**4.75**	5.000	0	94.9	81.8	111	01/08/2016
Chloroform	0.500		**4.46**	5.000	0	89.1	81	115	01/08/2016
Tetrachloroethene	0.500		**4.56**	5.000	0	91.2	61.7	114	01/08/2016
Trichloroethene	0.500		**4.55**	5.000	0	91.0	74.4	117	01/08/2016
Vinyl chloride	0.200		**3.99**	5.000	0	79.8	45.7	130	01/08/2016
Surr: 1,2-Dichloroethane-d4			**5.00**	5.000		99.9	74.7	129	01/08/2016
Surr: 4-Bromofluorobenzene			**5.00**	5.000		99.9	86	119	01/08/2016
Surr: Dibromofluoromethane			**4.84**	5.000		96.7	81.7	123	01/08/2016
Surr: Toluene-d8			**4.93**	5.000		98.6	84.3	114	01/08/2016

Client: Trihydro Corporation

Client Project: Water from Soil Vapor System

Work Order: 16010422

Report Date: 13-Jan-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 115516 **SampType:** MS Units µg/L

SampID: 16010376-002AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1-Dichloroethene	5.0		**41.9**	50.00	0	83.8	35.7	136	01/08/2016
Benzene	2.0		**45.1**	50.00	0	90.3	62.5	121	01/08/2016
Chlorobenzene	5.0		**45.4**	50.00	0	90.9	78.6	114	01/08/2016
Ethylbenzene	5.0		**45.8**	50.00	0	91.7	74.4	130	01/08/2016
m,p-Xylenes	5.0		**45.7**	50.00	0	91.4	70.5	126	01/08/2016
o-Xylene	5.0		**43.6**	50.00	0	87.3	71.2	124	01/08/2016
Toluene	5.0		**43.8**	50.00	0	87.5	69.5	118	01/08/2016
Trichloroethene	5.0		**45.5**	50.00	0	91.0	69.4	117	01/08/2016
Surr: 1,2-Dichloroethane-d4			**49.4**	50.00		98.7	74.7	129	01/08/2016
Surr: 4-Bromofluorobenzene			**51.7**	50.00		103.4	86	119	01/08/2016
Surr: Dibromofluoromethane			**47.8**	50.00		95.5	81.7	123	01/08/2016
Surr: Toluene-d8			**49.4**	50.00		98.7	84.3	114	01/08/2016

Batch 115516 **SampType:** MSD Units µg/L RPD Limit **20**

SampID: 16010376-002AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1-Dichloroethene	5.0		**36.9**	50.00	0	73.7	41.89	12.75	01/08/2016
Benzene	2.0		**41.4**	50.00	0	82.9	45.14	8.52	01/08/2016
Chlorobenzene	5.0		**42.0**	50.00	0	84.1	45.44	7.77	01/08/2016
Ethylbenzene	5.0		**41.8**	50.00	0	83.6	45.84	9.27	01/08/2016
m,p-Xylenes	5.0		**41.2**	50.00	0	82.5	45.70	10.28	01/08/2016
o-Xylene	5.0		**39.5**	50.00	0	78.9	43.65	10.08	01/08/2016
Toluene	5.0		**40.0**	50.00	0	80.1	43.77	8.88	01/08/2016
Trichloroethene	5.0		**41.8**	50.00	0	83.6	45.50	8.50	01/08/2016
Surr: 1,2-Dichloroethane-d4			**49.8**	50.00		99.5			01/08/2016
Surr: 4-Bromofluorobenzene			**51.0**	50.00		101.9			01/08/2016
Surr: Dibromofluoromethane			**47.8**	50.00		95.6			01/08/2016
Surr: Toluene-d8			**48.9**	50.00		97.7			01/08/2016

Receiving Check List

http://www.teklabinc.com/

Client: Trihydro Corporation

Client Project: Water from Soil Vapor System

Work Order: 16010422

Report Date: 13-Jan-16

Carrier: Anthony Kimutis

Received By: AMD

Completed by: Kalyn Foecke
On: 08-Jan-16

Kalyn Foecke

Reviewed by: Marvin L. Darling II
On: 08-Jan-16

Marvin L. Darling

Pages to follow: Chain of custody [1] Extra pages included [0]

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C	2.22
Type of thermal preservation?	None ☐	Ice ☑	Blue Ice ☐	Dry Ice	☐
Chain of custody present?	Yes ☑	No ☐			
Chain of custody signed when relinquished and received?	Yes ☑	No ☐			
Chain of custody agrees with sample labels?	Yes ☑	No ☐			
Samples in proper container/bottle?	Yes ☑	No ☐			
Sample containers intact?	Yes ☑	No ☐			
Sufficient sample volume for indicated test?	Yes ☑	No ☐			
All samples received within holding time?	Yes ☑	No ☐			
Reported field parameters measured:	Field ☐	Lab ☐	NA ☑		
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐			

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes ☑	No ☐	No VOA vials ☐
Water - TOX containers have zero headspace?	Yes ☐	No ☐	No TOX containers ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	NA ☐
NPDES/CWA TCN interferences checked/treated in the field?	Yes ☐	No ☐	NA ☑

Any No responses must be detailed below or on the COC.

CHAIN OF CUSTODY

pg. ____ of ____ Work Order # 16010422

TEKLAB, INC. 5445 Horseshoe Lake Road ~ Collinsville, IL 62234 ~ Phone: (618) 344-1004 ~ Fax: (618) 344-1005

Client: Trihydro
Address: 1252 Commerce Drive
City / State / Zip: Laramie WY 82070
Contact: Todd Aseltyne Phone: 307 723 7470
E-Mail: Taseltyne@Trihydro.com Fax:

Samples on: ☑ Ice ☐ Blue Ice ☐ No Ice 2.2 °C
Preserved in: ☐ Lab ☑ Field **FOR LAB USE ONLY**
Lab Notes: OMD 1/8/16
Zero head space after 1-8-16
Comments:

3 DAY

- Are these samples known to be involved in litigation? If yes, a surcharge will apply. ☐ Yes ☐ No
- Are these samples known to be hazardous? ☐ Yes ☐ No
- Are there any required reporting limits to be met on the requested analysis? If yes, please provide limits in comment section. ☐ Yes ☐ No

Project Name / Number	Sample Collector's Name

Results Requested
☐ Standard ☐ 1-2 Day (100% Surcharge)
☐ Other____ ☑ 3 Day (50% Surcharge)

Billing Instructions

Lab Use Only	Sample Identification	Date/Time Sampled	UNPRES	HNO_3	NaOH	H_2SO_4	HCL	MeOH	$NaHSO_4$	Other	Water	Drinking Water	Soil	Sludge	Sp. Waste	VOC	Flash	Lead	PNA
16010422 001	Tank 3	1/8/16 730														4	4	4	4

Relinquished By	Date / Time	Received By	Date / Time
[signature]	1/8/16 800	[signature]	1/8/16 0935
[signature]	1/8/16 1110	Amber Russello	1/8/16 1110

The individual signing this agreement on behalf of client acknowledges that he/she has read and understands the terms and conditions of this agreement, on the reverse side, and that he/she has the authority to sign on behalf of client.

WHITE – LAB YELLOW – SAMPLER'S COPY

February 25, 2016

Todd Aseltyne
Trihydro Corporation
1252 Commerce Drive
Laramie, WY 82070
TEL: (513) 429-7470
FAX:

RE: Hartford **WorkOrder:** 16021256

Dear Todd Aseltyne:

TEKLAB, INC received 1 sample on 2/22/2016 11:11:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Marvin L. Darling II

Marvin L. Darling
Project Manager
(618)344-1004 ex 41
mdarling@teklabinc.com

Teklab, Inc. Environmental Laboratory

Report Contents

http://www.teklabinc.com/

Client: Trihydro Corporation

Client Project: Hartford

Work Order: 16021256

Report Date: 25-Feb-16

This reporting package includes the following:

Abbr Definition

Abbr	Definition
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
DNI	Did not ignite
DUP	Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

# -	Unknown hydrocarbon	B -	Analyte detected in associated Method Blank
E -	Value above quantitation range	H -	Holding times exceeded
I -	Associated internal standard was outside method criteria	J -	Analyte detected below quantitation limits
M -	Manual Integration used to determine area response	ND -	Not Detected at the Reporting Limit
R -	RPD outside accepted recovery limits	S -	Spike Recovery outside recovery limits
T -	TIC(Tentatively identified compound)	X -	Value exceeds Maximum Contaminant Level

Teklab, Inc. Environmental Laboratory

Case Narrative

http://www.teklabinc.com/

Client: Trihydro Corporation

Work Order: 16021256

Client Project: Hartford

Report Date: 25-Feb-16

Cooler Receipt Temp: 4.62 °C

Locations and Accreditations

	Collinsville	Springfield	Kansas City	Collinsville Air
Address	5445 Horseshoe Lake Road	3920 Pintail Dr	8421 Nieman Road	5445 Horseshoe Lake Road
	Collinsville, IL 62234-7425	Springfield, IL 62711-9415	Lenexa, KS 66214	Collinsville, IL 62234-7425
Phone	(618) 344-1004	(217) 698-1004	(913) 541-1998	(618) 344-1004
Fax	(618) 344-1005	(217) 698-1005	(913) 541-1998	(618) 344-1005
Email	jhriley@teklabinc.com	KKlostermann@teklabinc.com	dthompson@teklabinc.com	EHurley@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2017	Collinsville
Kansas	KDHE	E-10374	NELAP	5/31/2016	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2016	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2016	Collinsville
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2016	Collinsville
Arkansas	ADEQ	88-0966		3/14/2016	Collinsville
Illinois	IDPH	17584		5/31/2017	Collinsville
Kentucky	KDEP	98006		12/31/2016	Collinsville
Kentucky	UST	0073		1/31/2017	Collinsville
Missouri	MDNR	00930		5/31/2017	Collinsville
Oklahoma	ODEQ	9978		8/31/2016	Collinsville

Client: Trihydro Corporation **Work Order:** 16021256

Client Project: Hartford **Report Date:** 25-Feb-16

Lab ID: 16021256-001 **Client Sample ID:** Tank 3

Matrix: AQUEOUS **Collection Date:** 02/22/2016 8:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1020B								
Ignitability, Closed Cup	NELAP	60		**>200**	°F	1	02/22/2016 13:17	R215151
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Lead	NELAP	0.0150		**0.0319**	mg/L	1	02/23/2016 9:12	116558
SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1-Methylnaphthalene		0.00050		**ND**	mg/L	5	02/24/2016 3:16	116540
Acenaphthene	NELAP	0.00050		**ND**	mg/L	5	02/24/2016 3:16	116540
Acenaphthylene	NELAP	0.00050		**ND**	mg/L	5	02/24/2016 3:16	116540
Anthracene	NELAP	0.00050		**0.00180**	mg/L	5	02/24/2016 3:16	116540
Benzo(a)anthracene	NELAP	0.00050		**0.00065**	mg/L	5	02/24/2016 3:16	116540
Benzo(a)pyrene	NELAP	0.00050		**ND**	mg/L	5	02/24/2016 3:16	116540
Benzo(b)fluoranthene	NELAP	0.00050		**ND**	mg/L	5	02/24/2016 3:16	116540
Benzo(g,h,i)perylene	NELAP	0.00050		**ND**	mg/L	5	02/24/2016 3:16	116540
Benzo(k)fluoranthene	NELAP	0.00050		**ND**	mg/L	5	02/24/2016 3:16	116540
Chrysene	NELAP	0.00050		**ND**	mg/L	5	02/24/2016 3:16	116540
Dibenzo(a,h)anthracene	NELAP	0.00050		**ND**	mg/L	5	02/24/2016 3:16	116540
Fluoranthene	NELAP	0.00050		**0.00055**	mg/L	5	02/24/2016 3:16	116540
Fluorene	NELAP	0.00050		**0.00080**	mg/L	5	02/24/2016 3:16	116540
Indeno(1,2,3-cd)pyrene	NELAP	0.00050		**ND**	mg/L	5	02/24/2016 3:16	116540
Naphthalene	NELAP	0.00050		**ND**	mg/L	5	02/24/2016 3:16	116540
Phenanthrene	NELAP	0.00050		**ND**	mg/L	5	02/24/2016 3:16	116540
Pyrene	NELAP	0.00050		**0.00350**	mg/L	5	02/24/2016 3:16	116540
Surr: 2-Fluorobiphenyl		10-143		**62.0**	%REC	5	02/24/2016 3:16	116540
Surr: Nitrobenzene-d5		10-166		**50.5**	%REC	5	02/24/2016 3:16	116540
Surr: p-Terphenyl-d14		10-137		**59.5**	%REC	5	02/24/2016 3:16	116540
Elevated reporting limit due to sample extract composition.								
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
1,1,1-Trichloroethane	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
1,1,2,2-Tetrachloroethane	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
1,1,2-Trichloro-1,2,2-trifluoroethane		20.0		**ND**	µg/L	1	02/23/2016 5:11	116573
1,1,2-Trichloroethane	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
1,1-Dichloro-2-propanone		50.0		**ND**	µg/L	1	02/23/2016 5:11	116573
1,1-Dichloroethane	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
1,1-Dichloroethene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
1,1-Dichloropropene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
1,2,3-Trichlorobenzene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
1,2,3-Trichloropropane	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
1,2,3-Trimethylbenzene		5.0	J	**3.3**	µg/L	1	02/23/2016 5:11	116573
1,2,4-Trichlorobenzene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
1,2,4-Trimethylbenzene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
1,2-Dibromo-3-chloropropane	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
1,2-Dibromoethane	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
1,2-Dichlorobenzene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
1,2-Dichloroethane	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
1,2-Dichloropropane	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
1,3,5-Trimethylbenzene	NELAP	5.0	J	**2.6**	µg/L	1	02/23/2016 5:11	116573
1,3-Dichlorobenzene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573

Client: Trihydro Corporation **Work Order:** 16021256

Client Project: Hartford **Report Date:** 25-Feb-16

Lab ID: 16021256-001 **Client Sample ID:** Tank 3

Matrix: AQUEOUS **Collection Date:** 02/22/2016 8:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,3-Dichloropropane	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
1,4-Dichlorobenzene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
1-Chlorobutane	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
2,2-Dichloropropane	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
2-Butanone	NELAP	25.0		**ND**	µg/L	1	02/23/2016 5:11	116573
2-Chloroethyl vinyl ether	NELAP	20.0		**ND**	µg/L	1	02/23/2016 5:11	116573
2-Chlorotoluene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
2-Hexanone	NELAP	25.0		**ND**	µg/L	1	02/23/2016 5:11	116573
2-Nitropropane	NELAP	50.0		**ND**	µg/L	1	02/23/2016 5:11	116573
4-Chlorotoluene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
4-Methyl-2-pentanone	NELAP	25.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Acetone	NELAP	25.0	J	**6.9**	µg/L	1	02/23/2016 5:11	116573
Acetonitrile	NELAP	50.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Acrolein	NELAP	100		**ND**	µg/L	1	02/23/2016 5:11	116573
Acrylonitrile	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Allyl chloride	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Benzene	NELAP	2.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Bromobenzene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Bromochloromethane	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Bromodichloromethane	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Bromoform	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Bromomethane	NELAP	10.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Carbon disulfide	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Carbon tetrachloride	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Chlorobenzene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Chloroethane	NELAP	10.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Chloroform	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Chloromethane	NELAP	10.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Chloroprene	NELAP	20.0		**ND**	µg/L	1	02/23/2016 5:11	116573
cis-1,2-Dichloroethene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
cis-1,3-Dichloropropene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
cis-1,4-Dichloro-2-butene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Cyclohexanone		50.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Dibromochloromethane	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Dibromomethane	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Dichlorodifluoromethane	NELAP	10.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Ethyl acetate	NELAP	10.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Ethyl ether	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Ethyl methacrylate	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Ethylbenzene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Hexachlorobutadiene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Hexachloroethane	NELAP	10.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Iodomethane	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Isopropylbenzene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
m,p-Xylenes	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Methacrylonitrile	NELAP	10.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Methyl Methacrylate	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573

Client: Trihydro Corporation **Work Order:** 16021256

Client Project: Hartford **Report Date:** 25-Feb-16

Lab ID: 16021256-001 **Client Sample ID:** Tank 3

Matrix: AQUEOUS **Collection Date:** 02/22/2016 8:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Methyl tert-butyl ether	NELAP	2.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Methylacrylate	NELAP	10.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Methylene chloride	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Naphthalene	NELAP	10.0		**ND**	µg/L	1	02/23/2016 5:11	116573
n-Butyl acetate		25.0		**ND**	µg/L	1	02/23/2016 5:11	116573
n-Butylbenzene	NELAP	5.0	J	**1.3**	µg/L	1	02/23/2016 5:11	116573
n-Heptane		20.0		**ND**	µg/L	1	02/23/2016 5:11	116573
n-Hexane		20.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Nitrobenzene	NELAP	50.0		**ND**	µg/L	1	02/23/2016 5:11	116573
n-Propylbenzene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
o-Xylene	NELAP	5.0	J	**1.1**	µg/L	1	02/23/2016 5:11	116573
Pentachloroethane	NELAP	20.0		**ND**	µg/L	1	02/23/2016 5:11	116573
p-Isopropyltoluene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Propionitrile	NELAP	50.0		**ND**	µg/L	1	02/23/2016 5:11	116573
sec-Butylbenzene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Styrene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
tert-Butylbenzene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Tetrachloroethene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Tetrahydrofuran	NELAP	20.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Toluene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
trans-1,2-Dichloroethene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
trans-1,3-Dichloropropene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
trans-1,4-Dichloro-2-butene	NELAP	10.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Trichloroethene	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Trichlorofluoromethane	NELAP	5.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Vinyl acetate	NELAP	10.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Vinyl chloride	NELAP	2.0		**ND**	µg/L	1	02/23/2016 5:11	116573
Surr: 1,2-Dichloroethane-d4		74.7-129		**99.7**	%REC	1	02/23/2016 5:11	116573
Surr: 4-Bromofluorobenzene		86-119		**95.8**	%REC	1	02/23/2016 5:11	116573
Surr: Dibromofluoromethane		81.7-123		**99.8**	%REC	1	02/23/2016 5:11	116573
Surr: Toluene-d8		84.3-114		**90.3**	%REC	1	02/23/2016 5:11	116573

Client: Trihydro Corporation **Work Order:** 16021256

Client Project: Hartford **Report Date:** 25-Feb-16

SW-846 1020B

Batch R215151 **SampType:** LCS Units °F

SampID: LCS-R215151

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ignitability, Closed Cup	60		**82**	81.00	0	101.2	97	103	02/22/2016

Batch R215151 **SampType:** DUP Units °F RPD Limit **5**

SampID: 16021256-001BDUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ignitability, Closed Cup	60		**>200**				0	0.00	02/22/2016

SW-846 3005A, 6010B, METALS BY ICP (TOTAL)

Batch 116558 **SampType:** MBLK Units **mg/L**

SampID: MBLK-116558

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	0.0150		**< 0.0150**	0.01500	0	0	-100	100	02/23/2016

Batch 116558 **SampType:** LCS Units **mg/L**

SampID: LCS-116558

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	0.0150		**0.538**	0.5000	0	107.6	85	115	02/23/2016

Batch 116558 **SampType:** MS Units **mg/L**

SampID: 16021281-002AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	0.0150		**0.519**	0.5000	0	103.7	75	125	02/23/2016

Batch 116558 **SampType:** MSD Units **mg/L** RPD Limit **20**

SampID: 16021281-002AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lead	0.0150		**0.513**	0.5000	0	102.6	0.5187	1.12	02/23/2016

Client: Trihydro Corporation

Work Order: 16021256

Client Project: Hartford

Report Date: 25-Feb-16

SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 116540 **SampType:** MBLK Units **mg/L**

SampID: MBLK-116540

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1-Methylnaphthalene	0.00010		**ND**						02/22/2016
Acenaphthene	0.00010		**ND**						02/22/2016
Acenaphthene	0.00010		**ND**						02/22/2016
Acenaphthylene	0.00010		**ND**						02/22/2016
Anthracene	0.00010		**ND**						02/22/2016
Anthracene	0.00010		**ND**						02/22/2016
Benzo(a)anthracene	0.00010		**ND**						02/22/2016
Benzo(a)pyrene	0.00010		**ND**						02/22/2016
Benzo(b)fluoranthene	0.00010		**ND**						02/22/2016
Benzo(g,h,i)perylene	0.00010		**ND**						02/22/2016
Benzo(k)fluoranthene	0.00010		**ND**						02/22/2016
Chrysene	0.00010		**ND**						02/22/2016
Dibenzo(a,h)anthracene	0.00010		**ND**						02/22/2016
Fluoranthene	0.00010		**ND**						02/22/2016
Fluoranthene	0.00010		**ND**						02/22/2016
Fluorene	0.00010		**ND**						02/22/2016
Fluorene	0.00010		**ND**						02/22/2016
Indeno(1,2,3-cd)pyrene	0.00010		**ND**						02/22/2016
Naphthalene	0.00010		**ND**						02/22/2016
Naphthalene	0.00010		**ND**						02/22/2016
Phenanthrene	0.00010		**ND**						02/22/2016
Phenanthrene	0.00010		**ND**						02/22/2016
Pyrene	0.00010		**ND**						02/22/2016
Pyrene	0.00010		**ND**						02/22/2016
Surr: 2-Fluorobiphenyl			**0.00350**	).00500(		70.0	44.4	89.6	02/22/2016
Surr: 2-Fluorobiphenyl			**0.00349**	).00500(		69.8	30.2	114	02/22/2016
Surr: Nitrobenzene-d5			**0.00320**	).00500(		64.0	40.9	81.4	02/22/2016
Surr: Nitrobenzene-d5			**0.00394**	).00500(		78.8	27.2	106	02/22/2016
Surr: p-Terphenyl-d14			**0.00535**	).00500(		107.0	35.2	135	02/22/2016
Surr: p-Terphenyl-d14			**0.00443**	).00500(		88.6	54.3	104	02/22/2016

Client: Trihydro Corporation **Work Order:** 16021256

Client Project: Hartford **Report Date:** 25-Feb-16

SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 116540 **SampType:** LCS Units **mg/L**

SampID: LCS-116540

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1-Methylnaphthalene	0.00010		**0.00366**	).00500(	0	73.2	38.8	96.6	02/22/2016
Acenaphthene	0.00010		**0.00389**	).00500(	0	77.8	46.6	96.4	02/22/2016
Acenaphthene	0.00010		**0.00431**	).00500(	0	86.2	53.5	111	02/22/2016
Acenaphthylene	0.00010		**0.00393**	).00500(	0	78.6	48.1	95.6	02/22/2016
Anthracene	0.00010		**0.00479**	).00500(	0	95.8	49.4	119	02/22/2016
Anthracene	0.00010		**0.00383**	).00500(	0	76.6	53.2	95.9	02/22/2016
Benzo(a)anthracene	0.00010		**0.00381**	).00500(	0	76.2	52.5	102	02/22/2016
Benzo(a)pyrene	0.00010		**0.00396**	).00500(	0	79.2	55.1	103	02/22/2016
Benzo(b)fluoranthene	0.00010		**0.00399**	).00500(	0	79.8	53.6	105	02/22/2016
Benzo(g,h,i)perylene	0.00010		**0.00395**	).00500(	0	79.0	46.3	110	02/22/2016
Benzo(k)fluoranthene	0.00010		**0.00393**	).00500(	0	78.6	53.8	104	02/22/2016
Chrysene	0.00010		**0.00393**	).00500(	0	78.6	51	101	02/22/2016
Dibenzo(a,h)anthracene	0.00010		**0.00420**	).00500(	0	84.0	49.4	110	02/22/2016
Fluoranthene	0.00010		**0.00369**	).00500(	0	73.8	54.5	99.5	02/22/2016
Fluoranthene	0.00010		**0.00502**	).00500(	0	100.4	57.1	121	02/22/2016
Fluorene	0.00010		**0.00447**	).00500(	0	89.4	53.3	117	02/22/2016
Fluorene	0.00010		**0.00398**	).00500(	0	79.6	51.1	97.6	02/22/2016
Indeno(1,2,3-cd)pyrene	0.00010		**0.00396**	).00500(	0	79.2	48.6	110	02/22/2016
Naphthalene	0.00010		**0.00353**	).00500(	0	70.6	39.8	93.1	02/22/2016
Naphthalene	0.00010		**0.00409**	).00500(	0	81.8	47.8	109	02/22/2016
Phenanthrene	0.00010		**0.00373**	).00500(	0	74.6	52.2	95.9	02/22/2016
Phenanthrene	0.00010		**0.00469**	).00500(	0	93.8	51.9	119	02/22/2016
Pyrene	0.00010		**0.00368**	).00500(	0	73.6	53.4	99.1	02/22/2016
Pyrene	0.00010		**0.00497**	).00500(	0	99.4	52.5	124	02/22/2016
Surr: 2-Fluorobiphenyl			**0.00340**	).00500(		68.0	45.5	101	02/22/2016
Surr: 2-Fluorobiphenyl			**0.00321**	).00500(		64.2	44.4	89.6	02/22/2016
Surr: Nitrobenzene-d5			**0.00437**	).00500(		87.4	47.2	102	02/22/2016
Surr: Nitrobenzene-d5			**0.00321**	).00500(		64.2	40.9	81.4	02/22/2016
Surr: p-Terphenyl-d14			**0.00508**	).00500(		101.6	54.9	115	02/22/2016
Surr: p-Terphenyl-d14			**0.00406**	).00500(		81.2	54.3	104	02/22/2016

Quality Control Results

http://www.teklabinc.com/

Client: Trihydro Corporation **Work Order:** 16021256

Client Project: Hartford **Report Date:** 25-Feb-16

SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 116540 **SampType:** LCSD Units **mg/L** RPD Limit **40**

SampID: LCSD-116540

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1-Methylnaphthalene	0.00010		**0.00364**	).00500(	0	72.8	0.003660	0.55	02/22/2016
Acenaphthene	0.00010		**0.00433**	).00500(	0	86.6	0.004310	0.46	02/22/2016
Acenaphthene	0.00010		**0.00387**	).00500(	0	77.4	0.003890	0.52	02/22/2016
Acenaphthylene	0.00010		**0.00388**	).00500(	0	77.6	0.003930	1.28	02/22/2016
Anthracene	0.00010		**0.00478**	).00500(	0	95.6	0.004790	0.21	02/22/2016
Anthracene	0.00010		**0.00386**	).00500(	0	77.2	0.003830	0.78	02/22/2016
Benzo(a)anthracene	0.00010		**0.00380**	).00500(	0	76.0	0.003810	0.26	02/22/2016
Benzo(a)pyrene	0.00010		**0.00391**	).00500(	0	78.2	0.003960	1.27	02/22/2016
Benzo(b)fluoranthene	0.00010		**0.00402**	).00500(	0	80.4	0.003990	0.75	02/22/2016
Benzo(g,h,i)perylene	0.00010		**0.00391**	).00500(	0	78.2	0.003950	1.02	02/22/2016
Benzo(k)fluoranthene	0.00010		**0.00390**	).00500(	0	78.0	0.003930	0.77	02/22/2016
Chrysene	0.00010		**0.00397**	).00500(	0	79.4	0.003930	1.01	02/22/2016
Dibenzo(a,h)anthracene	0.00010		**0.00414**	).00500(	0	82.8	0.004200	1.44	02/22/2016
Fluoranthene	0.00010		**0.00369**	).00500(	0	73.8	0.003690	0.00	02/22/2016
Fluoranthene	0.00010		**0.00497**	).00500(	0	99.4	0.005020	1.00	02/22/2016
Fluorene	0.00010		**0.00386**	).00500(	0	77.2	0.003980	3.06	02/22/2016
Fluorene	0.00010		**0.00459**	).00500(	0	91.8	0.004470	2.65	02/22/2016
Indeno(1,2,3-cd)pyrene	0.00010		**0.00390**	).00500(	0	78.0	0.003960	1.53	02/22/2016
Naphthalene	0.00010		**0.00406**	).00500(	0	81.2	0.004090	0.74	02/22/2016
Naphthalene	0.00010		**0.00353**	).00500(	0	70.6	0.003530	0.00	02/22/2016
Phenanthrene	0.00010		**0.00475**	).00500(	0	95.0	0.004690	1.27	02/22/2016
Phenanthrene	0.00010		**0.00373**	).00500(	0	74.6	0.003730	0.00	02/22/2016
Pyrene	0.00010		**0.00492**	).00500(	0	98.4	0.004970	1.01	02/22/2016
Pyrene	0.00010		**0.00366**	).00500(	0	73.2	0.003680	0.54	02/22/2016
Surr: 2-Fluorobiphenyl			**0.00330**	).00500(		66.0			02/22/2016
Surr: 2-Fluorobiphenyl			**0.00300**	).00500(		60.0			02/22/2016
Surr: Nitrobenzene-d5			**0.00431**	).00500(		86.2			02/22/2016
Surr: Nitrobenzene-d5			**0.00322**	).00500(		64.4			02/22/2016
Surr: p-Terphenyl-d14			**0.00384**	).00500(		76.8			02/22/2016
Surr: p-Terphenyl-d14			**0.00493**	).00500(		98.6			02/22/2016

Client: Trihydro Corporation **Work Order:** 16021256

Client Project: Hartford **Report Date:** 25-Feb-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 116573 **SampType:** MBLK Units µg/L

SampID: MBLK-N160222-2

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1,2-Tetrachloroethane	5.0		ND						02/22/2016
1,1,1-Trichloroethane	5.0		ND						02/22/2016
1,1,2,2-Tetrachloroethane	5.0		ND						02/22/2016
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0		ND						02/22/2016
1,1,2-Trichloroethane	5.0		ND						02/22/2016
1,1-Dichloro-2-propanone	50.0		ND						02/22/2016
1,1-Dichloroethane	5.0		ND						02/22/2016
1,1-Dichloroethene	5.0		ND						02/22/2016
1,1-Dichloropropene	5.0		ND						02/22/2016
1,2,3-Trichlorobenzene	5.0		ND						02/22/2016
1,2,3-Trichloropropane	5.0		ND						02/22/2016
1,2,3-Trimethylbenzene	5.0		ND						02/22/2016
1,2,4-Trichlorobenzene	5.0		ND						02/22/2016
1,2,4-Trimethylbenzene	5.0		ND						02/22/2016
1,2-Dibromo-3-chloropropane	5.0		ND						02/22/2016
1,2-Dibromoethane	5.0		ND						02/22/2016
1,2-Dichlorobenzene	5.0		ND						02/22/2016
1,2-Dichloroethane	5.0		ND						02/22/2016
1,2-Dichloropropane	5.0		ND						02/22/2016
1,3,5-Trimethylbenzene	5.0		ND						02/22/2016
1,3-Dichlorobenzene	5.0		ND						02/22/2016
1,3-Dichloropropane	5.0		ND						02/22/2016
1,4-Dichlorobenzene	5.0		ND						02/22/2016
1-Chlorobutane	5.0		ND						02/22/2016
2,2-Dichloropropane	5.0		ND						02/22/2016
2-Butanone	25.0		ND						02/22/2016
2-Chloroethyl vinyl ether	20.0		ND						02/22/2016
2-Chlorotoluene	5.0		ND						02/22/2016
2-Hexanone	25.0		ND						02/22/2016
2-Nitropropane	50.0		ND						02/22/2016
4-Chlorotoluene	5.0		ND						02/22/2016
4-Methyl-2-pentanone	25.0		ND						02/22/2016
Acetone	25.0		ND						02/22/2016
Acetonitrile	50.0		ND						02/22/2016
Acrolein	100		ND						02/22/2016
Acrylonitrile	5.0		ND						02/22/2016
Allyl chloride	5.0		ND						02/22/2016
Benzene	2.0		ND						02/22/2016
Bromobenzene	5.0		ND						02/22/2016
Bromochloromethane	5.0		ND						02/22/2016
Bromodichloromethane	5.0		ND						02/22/2016
Bromoform	5.0		ND						02/22/2016
Bromomethane	10.0		ND						02/22/2016
Carbon disulfide	5.0		ND						02/22/2016
Carbon tetrachloride	5.0		ND						02/22/2016
Chlorobenzene	5.0		ND						02/22/2016
Chloroethane	10.0		ND						02/22/2016

Client: Trihydro Corporation

Client Project: Hartford

Work Order: 16021256

Report Date: 25-Feb-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 116573 **SampType:** MBLK Units µg/L

SampID: MBLK-N160222-2

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloroform	5.0		ND						02/22/2016
Chloromethane	10.0		ND						02/22/2016
Chloroprene	20.0		ND						02/22/2016
cis-1,2-Dichloroethene	5.0		ND						02/22/2016
cis-1,3-Dichloropropene	5.0		ND						02/22/2016
cis-1,4-Dichloro-2-butene	5.0		ND						02/22/2016
Cyclohexanone	50.0		ND						02/22/2016
Dibromochloromethane	5.0		ND						02/22/2016
Dibromomethane	5.0		ND						02/22/2016
Dichlorodifluoromethane	10.0		ND						02/22/2016
Ethyl acetate	10.0		ND						02/22/2016
Ethyl ether	5.0		ND						02/22/2016
Ethyl methacrylate	5.0		ND						02/22/2016
Ethylbenzene	5.0		ND						02/22/2016
Hexachlorobutadiene	5.0		ND						02/22/2016
Hexachloroethane	10.0		ND						02/22/2016
Iodomethane	5.0		ND						02/22/2016
Isopropylbenzene	5.0		ND						02/22/2016
m,p-Xylenes	5.0		ND						02/22/2016
Methacrylonitrile	10.0		ND						02/22/2016
Methyl Methacrylate	5.0		ND						02/22/2016
Methyl tert-butyl ether	2.0		ND						02/22/2016
Methylacrylate	10.0		ND						02/22/2016
Methylene chloride	5.0		ND						02/22/2016
Naphthalene	10.0		ND						02/22/2016
n-Butyl acetate	25.0		ND						02/22/2016
n-Butylbenzene	5.0		ND						02/22/2016
n-Heptane	20.0		ND						02/22/2016
n-Hexane	20.0		ND						02/22/2016
Nitrobenzene	50.0		ND						02/22/2016
n-Propylbenzene	5.0		ND						02/22/2016
o-Xylene	5.0		ND						02/22/2016
Pentachloroethane	20.0		ND						02/22/2016
p-Isopropyltoluene	5.0		ND						02/22/2016
Propionitrile	50.0		ND						02/22/2016
sec-Butylbenzene	5.0		ND						02/22/2016
Styrene	5.0		ND						02/22/2016
tert-Butylbenzene	5.0		ND						02/22/2016
Tetrachloroethene	5.0		ND						02/22/2016
Tetrahydrofuran	20.0		ND						02/22/2016
Toluene	5.0		ND						02/22/2016
trans-1,2-Dichloroethene	5.0		ND						02/22/2016
trans-1,3-Dichloropropene	5.0		ND						02/22/2016
trans-1,4-Dichloro-2-butene	10.0		ND						02/22/2016
Trichloroethene	5.0		ND						02/22/2016
Trichlorofluoromethane	5.0		ND						02/22/2016
Vinyl acetate	10.0		ND						02/22/2016

Client: Trihydro Corporation **Work Order:** 16021256

Client Project: Hartford **Report Date:** 25-Feb-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 116573 **SampType:** MBLK Units **µg/L**

SampID: MBLK-N160222-2

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Vinyl chloride	2.0		**ND**						02/22/2016
Surr: 1,2-Dichloroethane-d4			**50.5**	50.00		100.9	74.7	129	02/22/2016
Surr: 4-Bromofluorobenzene			**49.4**	50.00		98.7	86	119	02/22/2016
Surr: Dibromofluoromethane			**49.6**	50.00		99.1	81.7	123	02/22/2016
Surr: Toluene-d8			**48.7**	50.00		97.4	84.3	114	02/22/2016

Teklab, Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Trihydro Corporation **Work Order:** 16021256

Client Project: Hartford **Report Date:** 25-Feb-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 116573 **SampType:** LCS Units µg/L

SampID: LCS-N160222-2

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1,2-Tetrachloroethane	5.0		**52.4**	50.00	0	104.7	81.9	115	02/22/2016
1,1,1-Trichloroethane	5.0		**49.4**	50.00	0	98.8	79.4	124	02/22/2016
1,1,2,2-Tetrachloroethane	5.0		**46.5**	50.00	0	93.0	74.7	116	02/22/2016
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0		**46.5**	50.00	0	92.9	72.9	121	02/22/2016
1,1,2-Trichloroethane	5.0		**48.1**	50.00	0	96.1	80.8	111	02/22/2016
1,1-Dichloro-2-propanone	50.0		**96.5**	125.0	0	77.2	66.3	130	02/22/2016
1,1-Dichloroethane	5.0		**51.1**	50.00	0	102.2	79.4	114	02/22/2016
1,1-Dichloroethene	5.0		**47.1**	50.00	0	94.2	74.1	117	02/22/2016
1,1-Dichloropropene	5.0		**49.9**	50.00	0	99.8	81.7	116	02/22/2016
1,2,3-Trichlorobenzene	5.0		**51.0**	50.00	0	102.0	79.7	118	02/22/2016
1,2,3-Trichloropropane	5.0		**46.3**	50.00	0	92.6	77.3	112	02/22/2016
1,2,3-Trimethylbenzene	5.0		**48.7**	50.00	0	97.4	79.9	119	02/22/2016
1,2,4-Trichlorobenzene	5.0		**50.1**	50.00	0	100.2	79.3	118	02/22/2016
1,2,4-Trimethylbenzene	5.0		**49.0**	50.00	0	97.9	78.7	115	02/22/2016
1,2-Dibromo-3-chloropropane	5.0		**43.3**	50.00	0	86.5	76	122	02/22/2016
1,2-Dibromoethane	5.0		**49.8**	50.00	0	99.6	80.8	114	02/22/2016
1,2-Dichlorobenzene	5.0		**50.7**	50.00	0	101.3	78.3	112	02/22/2016
1,2-Dichloroethane	5.0		**45.7**	50.00	0	91.3	70.6	118	02/22/2016
1,2-Dichloropropane	5.0		**51.7**	50.00	0	103.3	79.6	113	02/22/2016
1,3,5-Trimethylbenzene	5.0		**49.6**	50.00	0	99.1	77.5	115	02/22/2016
1,3-Dichlorobenzene	5.0		**50.6**	50.00	0	101.1	78.6	117	02/22/2016
1,3-Dichloropropane	5.0		**48.4**	50.00	0	96.8	78.8	112	02/22/2016
1,4-Dichlorobenzene	5.0		**50.1**	50.00	0	100.1	77.8	114	02/22/2016
1-Chlorobutane	5.0		**48.6**	50.00	0	97.1	78.6	115	02/22/2016
2,2-Dichloropropane	5.0		**40.0**	50.00	0	80.0	74.9	130	02/22/2016
2-Butanone	25.0		**112**	125.0	0	89.7	70.7	136	02/22/2016
2-Chloroethyl vinyl ether	20.0		**49.7**	50.00	0	99.4	52.5	145	02/22/2016
2-Chlorotoluene	5.0		**47.9**	50.00	0	95.8	77.4	114	02/22/2016
2-Hexanone	25.0		**108**	125.0	0	86.2	73.3	125	02/22/2016
2-Nitropropane	50.0		**453**	500.0	0	90.7	67.3	139	02/22/2016
4-Chlorotoluene	5.0		**47.7**	50.00	0	95.3	78.3	115	02/22/2016
4-Methyl-2-pentanone	25.0		**115**	125.0	0	92.0	76.3	122	02/22/2016
Acetone	25.0		**105**	125.0	0	83.9	56.4	147	02/22/2016
Acetonitrile	50.0		**419**	500.0	0	83.9	59.3	129	02/22/2016
Acrolein	100		**357**	500.0	0	71.4	1	201	02/22/2016
Acrylonitrile	5.0		**44.9**	50.00	0	89.9	74.1	128	02/22/2016
Allyl chloride	5.0		**48.5**	50.00	0	97.0	71.5	123	02/22/2016
Benzene	2.0		**51.2**	50.00	0	102.4	80	114	02/22/2016
Bromobenzene	5.0		**45.8**	50.00	0	91.6	73.2	118	02/22/2016
Bromochloromethane	5.0		**47.3**	50.00	0	94.5	73.3	121	02/22/2016
Bromodichloromethane	5.0		**51.8**	50.00	0	103.6	81.6	121	02/22/2016
Bromoform	5.0		**50.6**	50.00	0	101.2	83.1	127	02/22/2016
Bromomethane	10.0		**41.9**	50.00	0	83.9	44.4	154	02/22/2016
Carbon disulfide	5.0		**46.0**	50.00	0	92.0	73.2	118	02/22/2016
Carbon tetrachloride	5.0		**51.5**	50.00	0	103.1	79.4	130	02/22/2016
Chlorobenzene	5.0		**50.5**	50.00	0	101.1	81.4	110	02/22/2016
Chloroethane	10.0		**41.0**	50.00	0	82.0	52.1	137	02/22/2016

Client: Trihydro Corporation **Work Order:** 16021256

Client Project: Hartford **Report Date:** 25-Feb-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 116573 **SampType:** LCS Units **µg/L**

SampID: LCS-N160222-2

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloroform	5.0		**49.0**	50.00	0	97.9	82.7	116	02/22/2016
Chloromethane	10.0		**35.8**	50.00	0	71.6	48.2	144	02/22/2016
Chloroprene	20.0		**44.9**	50.00	0	89.9	80.6	126	02/22/2016
cis-1,2-Dichloroethene	5.0		**47.5**	50.00	0	95.1	78.2	116	02/22/2016
cis-1,3-Dichloropropene	5.0		**51.6**	50.00	0	103.1	83	119	02/22/2016
cis-1,4-Dichloro-2-butene	5.0		**36.8**	50.00	0	73.7	60.7	137	02/22/2016
Cyclohexanone	50.0		**309**	500.0	0	61.7	54.2	145	02/22/2016
Dibromochloromethane	5.0		**52.8**	50.00	0	105.6	81.2	121	02/22/2016
Dibromomethane	5.0		**48.8**	50.00	0	97.5	78.3	118	02/22/2016
Dichlorodifluoromethane	10.0		**32.9**	50.00	0	65.8	20.6	154	02/22/2016
Ethyl acetate	10.0		**45.4**	50.00	0	90.8	73.1	116	02/22/2016
Ethyl ether	5.0		**45.8**	50.00	0	91.6	75.2	109	02/22/2016
Ethyl methacrylate	5.0		**47.8**	50.00	0	95.5	80.1	113	02/22/2016
Ethylbenzene	5.0		**49.6**	50.00	0	99.1	77.2	113	02/22/2016
Hexachlorobutadiene	5.0		**48.4**	50.00	0	96.9	77.3	123	02/22/2016
Hexachloroethane	10.0		**52.7**	50.00	0	105.4	74.6	117	02/22/2016
Iodomethane	5.0		**55.4**	50.00	0	110.8	61.3	140	02/22/2016
Isopropylbenzene	5.0		**50.9**	50.00	0	101.9	81.3	114	02/22/2016
m,p-Xylenes	5.0		**97.1**	100.0	0	97.1	79.6	113	02/22/2016
Methacrylonitrile	10.0		**48.8**	50.00	0	97.6	77.2	125	02/22/2016
Methyl Methacrylate	5.0		**47.6**	50.00	0	95.3	74.2	121	02/22/2016
Methyl tert-butyl ether	2.0		**48.1**	50.00	0	96.2	76.8	117	02/22/2016
Methylacrylate	10.0		**50.2**	50.00	0	100.3	78	124	02/22/2016
Methylene chloride	5.0		**48.8**	50.00	0	97.7	74.1	114	02/22/2016
Naphthalene	10.0		**52.2**	50.00	0	104.4	77.9	122	02/22/2016
n-Butyl acetate	25.0		**45.0**	50.00	0	90.0	74	120	02/22/2016
n-Butylbenzene	5.0		**44.8**	50.00	0	89.6	71.1	120	02/22/2016
n-Heptane	20.0		**42.0**	50.00	0	83.9	67.4	129	02/22/2016
n-Hexane	20.0		**47.5**	50.00	0	95.0	68.4	126	02/22/2016
Nitrobenzene	50.0		**412**	500.0	0	82.5	37.9	181	02/22/2016
n-Propylbenzene	5.0		**48.0**	50.00	0	95.9	74.6	118	02/22/2016
o-Xylene	5.0		**50.0**	50.00	0	100.0	80.1	111	02/22/2016
Pentachloroethane	20.0		**51.0**	50.00	0	101.9	78.8	117	02/22/2016
p-Isopropyltoluene	5.0		**50.3**	50.00	0	100.6	77.6	118	02/22/2016
Propionitrile	50.0		**455**	500.0	0	91.0	72.9	137	02/22/2016
sec-Butylbenzene	5.0		**48.2**	50.00	0	96.5	74.5	119	02/22/2016
Styrene	5.0		**52.6**	50.00	0	105.2	83.4	113	02/22/2016
tert-Butylbenzene	5.0		**46.8**	50.00	0	93.5	75.9	114	02/22/2016
Tetrachloroethene	5.0		**51.4**	50.00	0	102.9	72.5	125	02/22/2016
Tetrahydrofuran	20.0		**43.6**	50.00	0	87.2	69.6	125	02/22/2016
Toluene	5.0		**48.6**	50.00	0	97.1	77.5	113	02/22/2016
trans-1,2-Dichloroethene	5.0		**48.6**	50.00	0	97.3	79	114	02/22/2016
trans-1,3-Dichloropropene	5.0		**48.0**	50.00	0	96.0	78	115	02/22/2016
trans-1,4-Dichloro-2-butene	10.0		**39.1**	50.00	0	78.2	63.3	128	02/22/2016
Trichloroethene	5.0		**51.7**	50.00	0	103.4	84.4	114	02/22/2016
Trichlorofluoromethane	5.0		**45.3**	50.00	0	90.6	75.2	132	02/22/2016
Vinyl acetate	10.0		**49.1**	50.00	0	98.3	64.5	127	02/22/2016

Client: Trihydro Corporation

Client Project: Hartford

Work Order: 16021256

Report Date: 25-Feb-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 116573 **SampType:** LCS Units **µg/L**

SampID: LCS-N160222-2

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Vinyl chloride	2.0		**40.3**	50.00	0	80.7	58	134	02/22/2016
Surr: 1,2-Dichloroethane-d4			**44.2**	50.00		88.4	74.7	129	02/22/2016
Surr: 4-Bromofluorobenzene			**48.1**	50.00		96.1	86	119	02/22/2016
Surr: Dibromofluoromethane			**49.9**	50.00		99.8	81.7	123	02/22/2016
Surr: Toluene-d8			**47.7**	50.00		95.3	84.1	114	02/22/2016

Batch 116573 **SampType:** MS Units **mg/L**

SampID: 16021137-009AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1-Dichloroethene	0.500		**5.30**	5.000	0	105.9	61.3	123	02/23/2016
1,2-Dichloroethane	0.500		**5.02**	5.000	0	100.4	71.5	116	02/23/2016
1,4-Dichlorobenzene	0.500		**4.85**	5.000	0	97.0	76.9	113	02/23/2016
2-Butanone	2.50		**5.08**	5.000	0	101.6	64.1	132	02/23/2016
Benzene	0.200		**5.36**	5.000	0	107.2	81.5	113	02/23/2016
Carbon tetrachloride	0.500		**5.30**	5.000	0	106.1	55.5	125	02/23/2016
Chlorobenzene	0.500		**5.07**	5.000	0	101.5	81.8	111	02/23/2016
Chloroform	0.500		**4.99**	5.000	0	99.9	81	115	02/23/2016
Tetrachloroethene	0.500		**4.79**	5.000	0	95.7	61.7	114	02/23/2016
Trichloroethene	0.500		**5.27**	5.000	0	105.4	74.4	117	02/23/2016
Vinyl chloride	0.200		**4.33**	5.000	0	86.7	45.7	130	02/23/2016
Surr: 1,2-Dichloroethane-d4			**5.10**	5.000		102.0	74.7	129	02/23/2016
Surr: 4-Bromofluorobenzene			**4.85**	5.000		97.0	86	119	02/23/2016
Surr: Dibromofluoromethane			**5.00**	5.000		100.0	81.7	123	02/23/2016
Surr: Toluene-d8			**4.79**	5.000		95.9	84.3	114	02/23/2016

Batch 116573 **SampType:** MSD Units **mg/L** RPD Limit **20**

SampID: 16021137-009AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1-Dichloroethene	0.500		**5.15**	5.000	0	102.9	5.295	2.83	02/23/2016
1,2-Dichloroethane	0.500		**4.85**	5.000	0	96.9	5.022	3.55	02/23/2016
1,4-Dichlorobenzene	0.500		**4.80**	5.000	0	96.1	4.849	0.95	02/23/2016
2-Butanone	2.50		**5.12**	5.000	0	102.3	5.081	0.71	02/23/2016
Benzene	0.200		**5.24**	5.000	0	104.9	5.362	2.21	02/23/2016
Carbon tetrachloride	0.500		**5.21**	5.000	0	104.1	5.305	1.86	02/23/2016
Chlorobenzene	0.500		**5.00**	5.000	0	99.9	5.073	1.53	02/23/2016
Chloroform	0.500		**4.86**	5.000	0	97.3	4.993	2.64	02/23/2016
Tetrachloroethene	0.500		**4.72**	5.000	0	94.5	4.787	1.35	02/23/2016
Trichloroethene	0.500		**5.19**	5.000	0	103.8	5.271	1.51	02/23/2016
Vinyl chloride	0.200		**4.32**	5.000	0	86.4	4.333	0.30	02/23/2016
Surr: 1,2-Dichloroethane-d4			**5.08**	5.000		101.5			02/23/2016
Surr: 4-Bromofluorobenzene			**4.90**	5.000		98.1			02/23/2016
Surr: Dibromofluoromethane			**4.95**	5.000		99.0			02/23/2016
Surr: Toluene-d8			**4.80**	5.000		95.9			02/23/2016

Teklab Inc. Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Trihydro Corporation

Client Project: Hartford

Work Order: 16021256

Report Date: 25-Feb-16

Carrier: Nick Harvey

Received By: AMD

Completed by: Amber M. Dilallo
On: 22-Feb-16

Reviewed by: Elizabeth A. Hurley
On: 22-Feb-16

Pages to follow: Chain of custody 1 Extra pages included 0

Shipping container/cooler in good condition?	Yes	☑	No	☐	Not Present	☐	Temp °C	4.62
Type of thermal preservation?	None	☐	Ice	☑	Blue Ice	☐	Dry Ice	☐
Chain of custody present?	Yes	☑	No	☐				
Chain of custody signed when relinquished and received?	Yes	☑	No	☐				
Chain of custody agrees with sample labels?	Yes	☑	No	☐				
Samples in proper container/bottle?	Yes	☑	No	☐				
Sample containers intact?	Yes	☑	No	☐				
Sufficient sample volume for indicated test?	Yes	☑	No	☐				
All samples received within holding time?	Yes	☑	No	☐				
Reported field parameters measured:	Field	☐	Lab	☐	NA	☑		
Container/Temp Blank temperature in compliance?	Yes	☑	No	☐				

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes	☑	No	☐	No VOA vials	☐
Water - TOX containers have zero headspace?	Yes	☐	No	☐	No TOX containers	☑
Water - pH acceptable upon receipt?	Yes	☑	No	☐	NA	☐
NPDES/CWA TCN interferences checked/treated in the field?	Yes	☐	No	☐	NA	☑

Any No responses must be detailed below or on the COC.

CHAIN OF CUSTODY

pg. ____ of ____ Work Order # 16021256

TEKLAB, INC. 5445 Horseshoe Lake Road ~ Collinsville, IL 62234 ~ Phone: (618) 344-1004 ~ Fax: (618) 344-1005

Client: Trihydro
Address: 1252 Commerce Drive
City / State / Zip: Laramie Wy 82070
Contact: Todd Aseltyne Phone: 513 429 2470
E-Mail: Taseltyne@Trihydro.com Fax:

Samples on: ☒ Ice ☐ Blue Ice ☐ No Ice 4.0 °C
Preserved in: ☐ Lab ☒ Field FOR LAB USE ONLY
Lab Notes: Courier Pick Up

Comments: 3 DAY

Zero head space dmo 2-22-16

- Are these samples known to be involved in litigation? If yes, a surcharge will apply. ☐ Yes ☐ No
- Are these samples known to be hazardous? ☐ Yes ☐ No
- Are there any required reporting limits to be met on the requested analysis? If yes, please provide limits in comment section. ☐ Yes ☐ No

Project Name / Number: Hartford

Sample Collector's Name: Todd Hanford

Results Requested: ☐ Standard ☐ 1-2 Day (100% Surcharge) ☐ Other ☒ 3 Day (50% Surcharge)

Billing Instructions:

Lab Use Only	Sample Identification	Date/Time Sampled	UNPRES	HNO_3	NaOH	H_2SO_4	HCL	MeOH	$NaHSO_4$	Other	Water	Drinking Water	Soil	Sludge	Sp. Waste	VOC	Flash	Lead	PNA
16021256-001	Tank 3	2/22/16 830														X	X	X	X

Relinquished By	Date / Time	Received By	Date / Time
Todd Hanford	2/22/16 840		2/22/16 1045
	2/22/16 1111	Amoo Alcaro	2/22/16 1111

The individual signing this agreement on behalf of client acknowledges that he/she has read and understands the terms and conditions of this agreement, on the reverse side, and that he/she has the authority to sign on behalf of client.

WHITE – LAB YELLOW – SAMPLER'S COPY

March 08, 2016

Todd Aseltyne
Trihydro Corporation
1252 Commerce Drive
Laramie, WY 82070
TEL: (513) 429-7470
FAX:

NELAP ACCREDITED TNI LABORATORY

RE: Soil Vapor System **WorkOrder:** 16030420

Dear Todd Aseltyne:

TEKLAB, INC received 1 sample on 3/7/2016 10:35:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Marvin L. Darling II

Marvin L. Darling
Project Manager
(618)344-1004 ex 41
mdarling@teklabinc.com

Report Contents

http://www.teklabinc.com/

Client: Trihydro Corporation
Client Project: Soil Vapor System

Work Order: 16030420
Report Date: 08-Mar-16

This reporting package includes the following:

Abbr Definition

Abbr	Definition
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
DNI	Did not ignite
DUP	Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

# -	Unknown hydrocarbon	B -	Analyte detected in associated Method Blank
E -	Value above quantitation range	H -	Holding times exceeded
I -	Associated internal standard was outside method criteria	J -	Analyte detected below quantitation limits
M -	Manual Integration used to determine area response	ND -	Not Detected at the Reporting Limit
R -	RPD outside accepted recovery limits	S -	Spike Recovery outside recovery limits
T -	TIC(Tentatively identified compound)	X -	Value exceeds Maximum Contaminant Level

Client: Trihydro Corporation
Client Project: Soil Vapor System

Work Order: 16030420
Report Date: 08-Mar-16

Cooler Receipt Temp: 5.22 °C

Locations and Accreditations

	Collinsville	Springfield	Kansas City	Collinsville Air
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425	3920 Pintail Dr Springfield, IL 62711-9415	8421 Nieman Road Lenexa, KS 66214	5445 Horseshoe Lake Road Collinsville, IL 62234-7425
Phone	(618) 344-1004	(217) 698-1004	(913) 541-1998	(618) 344-1004
Fax	(618) 344-1005	(217) 698-1005	(913) 541-1998	(618) 344-1005
Email	jhriley@teklabinc.com	KKlostermann@teklabinc.com	dthompson@teklabinc.com	EHurley@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2017	Collinsville
Kansas	KDHE	E-10374	NELAP	5/31/2016	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2016	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2016	Collinsville
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2016	Collinsville
Arkansas	ADEQ	88-0966		3/14/2017	Collinsville
Illinois	IDPH	17584		5/31/2017	Collinsville
Kentucky	KDEP	98006		12/31/2016	Collinsville
Kentucky	UST	0073		1/31/2017	Collinsville
Missouri	MDNR	00930		5/31/2017	Collinsville
Oklahoma	ODEQ	9978		8/31/2016	Collinsville

Client: Trihydro Corporation **Work Order:** 16030420

Client Project: Soil Vapor System **Report Date:** 08-Mar-16

Lab ID: 16030420-001 **Client Sample ID:** Tank 3

Matrix: AQUEOUS **Collection Date:** 03/07/2016 8:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1020B								
Ignitability, Closed Cup	NELAP	60		**>200**	°F	1	03/07/2016 12:57	R215657
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Lead	NELAP	0.0150		**0.0293**	mg/L	1	03/08/2016 8:29	116922
SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1-Methylnaphthalene		0.00050		**0.00240**	mg/L	5	03/08/2016 10:40	116925
Acenaphthene	NELAP	0.00050		**0.00050**	mg/L	5	03/08/2016 10:40	116925
Acenaphthylene	NELAP	0.00050		**ND**	mg/L	5	03/08/2016 10:40	116925
Anthracene	NELAP	0.00050		**0.00100**	mg/L	5	03/08/2016 10:40	116925
Benzo(a)anthracene	NELAP	0.00050		**ND**	mg/L	5	03/08/2016 10:40	116925
Benzo(a)pyrene	NELAP	0.00050		**ND**	mg/L	5	03/08/2016 10:40	116925
Benzo(b)fluoranthene	NELAP	0.00050		**ND**	mg/L	5	03/08/2016 10:40	116925
Benzo(g,h,i)perylene	NELAP	0.00050		**ND**	mg/L	5	03/08/2016 10:40	116925
Benzo(k)fluoranthene	NELAP	0.00050		**ND**	mg/L	5	03/08/2016 10:40	116925
Chrysene	NELAP	0.00050		**ND**	mg/L	5	03/08/2016 10:40	116925
Dibenzo(a,h)anthracene	NELAP	0.00050		**ND**	mg/L	5	03/08/2016 10:40	116925
Fluoranthene	NELAP	0.00050		**ND**	mg/L	5	03/08/2016 10:40	116925
Fluorene	NELAP	0.00050		**0.00095**	mg/L	5	03/08/2016 10:40	116925
Indeno(1,2,3-cd)pyrene	NELAP	0.00050		**ND**	mg/L	5	03/08/2016 10:40	116925
Naphthalene	NELAP	0.00050		**0.00100**	mg/L	5	03/08/2016 10:40	116925
Phenanthrene	NELAP	0.00050		**0.00075**	mg/L	5	03/08/2016 10:40	116925
Pyrene	NELAP	0.00050		**0.00210**	mg/L	5	03/08/2016 10:40	116925
Surr: 2-Fluorobiphenyl		10-143		**60.5**	%REC	5	03/08/2016 10:40	116925
Surr: Nitrobenzene-d5		10-166		**54.5**	%REC	5	03/08/2016 10:40	116925
Surr: p-Terphenyl-d14		10-137		**61.0**	%REC	5	03/08/2016 10:40	116925
Elevated reporting limit due to sample extract composition.								
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1,2-Tetrachloroethane	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
1,1,1-Trichloroethane	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
1,1,2,2-Tetrachloroethane	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
1,1,2-Trichloro-1,2,2-trifluoroethane		20.0		**ND**	µg/L	1	03/08/2016 12:10	116960
1,1,2-Trichloroethane	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
1,1-Dichloro-2-propanone		50.0		**ND**	µg/L	1	03/08/2016 12:10	116960
1,1-Dichloroethane	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
1,1-Dichloroethene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
1,1-Dichloropropene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
1,2,3-Trichlorobenzene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
1,2,3-Trichloropropane	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
1,2,3-Trimethylbenzene		5.0		**10.0**	µg/L	1	03/08/2016 12:10	116960
1,2,4-Trichlorobenzene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
1,2,4-Trimethylbenzene	NELAP	5.0		**5.8**	µg/L	1	03/08/2016 12:10	116960
1,2-Dibromo-3-chloropropane	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
1,2-Dibromoethane	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
1,2-Dichlorobenzene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
1,2-Dichloroethane	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
1,2-Dichloropropane	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
1,3,5-Trimethylbenzene	NELAP	5.0	J	**4.8**	µg/L	1	03/08/2016 12:10	116960
1,3-Dichlorobenzene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960

Client: Trihydro Corporation **Work Order:** 16030420
Client Project: Soil Vapor System **Report Date:** 08-Mar-16
Lab ID: 16030420-001 **Client Sample ID:** Tank 3
Matrix: AQUEOUS **Collection Date:** 03/07/2016 8:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,3-Dichloropropane	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
1,4-Dichlorobenzene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
1-Chlorobutane	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
2,2-Dichloropropane	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
2-Butanone	NELAP	25.0		**ND**	µg/L	1	03/08/2016 12:10	116960
2-Chloroethyl vinyl ether	NELAP	20.0		**ND**	µg/L	1	03/08/2016 12:10	116960
2-Chlorotoluene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
2-Hexanone	NELAP	25.0		**ND**	µg/L	1	03/08/2016 12:10	116960
2-Nitropropane	NELAP	50.0		**ND**	µg/L	1	03/08/2016 12:10	116960
4-Chlorotoluene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
4-Methyl-2-pentanone	NELAP	25.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Acetone	NELAP	25.0	J	**8.3**	µg/L	1	03/08/2016 12:10	116960
Acetonitrile	NELAP	50.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Acrolein	NELAP	100		**ND**	µg/L	1	03/08/2016 12:10	116960
Acrylonitrile	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Allyl chloride	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Benzene	NELAP	2.0	J	**0.6**	µg/L	1	03/08/2016 12:10	116960
Bromobenzene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Bromochloromethane	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Bromodichloromethane	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Bromoform	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Bromomethane	NELAP	10.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Carbon disulfide	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Carbon tetrachloride	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Chlorobenzene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Chloroethane	NELAP	10.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Chloroform	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Chloromethane	NELAP	10.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Chloroprene	NELAP	20.0		**ND**	µg/L	1	03/08/2016 12:10	116960
cis-1,2-Dichloroethene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
cis-1,3-Dichloropropene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
cis-1,4-Dichloro-2-butene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Cyclohexanone		50.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Dibromochloromethane	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Dibromomethane	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Dichlorodifluoromethane	NELAP	10.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Ethyl acetate	NELAP	10.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Ethyl ether	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Ethyl methacrylate	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Ethylbenzene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Hexachlorobutadiene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Hexachloroethane	NELAP	10.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Iodomethane	NELAP	5.0	J	**2.7**	µg/L	1	03/08/2016 12:10	116960
Isopropylbenzene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
m,p-Xylenes	NELAP	5.0		**6.9**	µg/L	1	03/08/2016 12:10	116960
Methacrylonitrile	NELAP	10.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Methyl Methacrylate	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960

Client: Trihydro Corporation **Work Order:** 16030420

Client Project: Soil Vapor System **Report Date:** 08-Mar-16

Lab ID: 16030420-001 **Client Sample ID:** Tank 3

Matrix: AQUEOUS **Collection Date:** 03/07/2016 8:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Methyl tert-butyl ether	NELAP	2.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Methylacrylate	NELAP	10.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Methylene chloride	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Naphthalene	NELAP	10.0	J	**6.3**	µg/L	1	03/08/2016 12:10	116960
n-Butyl acetate		25.0		**ND**	µg/L	1	03/08/2016 12:10	116960
n-Butylbenzene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
n-Heptane		20.0		**ND**	µg/L	1	03/08/2016 12:10	116960
n-Hexane		20.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Nitrobenzene	NELAP	50.0		**ND**	µg/L	1	03/08/2016 12:10	116960
n-Propylbenzene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
o-Xylene	NELAP	5.0	J	**4.2**	µg/L	1	03/08/2016 12:10	116960
Pentachloroethane	NELAP	20.0		**ND**	µg/L	1	03/08/2016 12:10	116960
p-Isopropyltoluene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Propionitrile	NELAP	50.0		**ND**	µg/L	1	03/08/2016 12:10	116960
sec-Butylbenzene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Styrene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
tert-Butylbenzene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Tetrachloroethene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Tetrahydrofuran	NELAP	20.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Toluene	NELAP	5.0	J	**1.0**	µg/L	1	03/08/2016 12:10	116960
trans-1,2-Dichloroethene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
trans-1,3-Dichloropropene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
trans-1,4-Dichloro-2-butene	NELAP	10.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Trichloroethene	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Trichlorofluoromethane	NELAP	5.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Vinyl acetate	NELAP	10.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Vinyl chloride	NELAP	2.0		**ND**	µg/L	1	03/08/2016 12:10	116960
Surr: 1,2-Dichloroethane-d4		74.7-129		**98.6**	%REC	1	03/08/2016 12:10	116960
Surr: 4-Bromofluorobenzene		86-119		**100.0**	%REC	1	03/08/2016 12:10	116960
Surr: Dibromofluoromethane		81.7-123		**95.1**	%REC	1	03/08/2016 12:10	116960
Surr: Toluene-d8		84.3-114		**98.9**	%REC	1	03/08/2016 12:10	116960

Client: Trihydro Corporation **Work Order:** 16030420

Client Project: Soil Vapor System **Report Date:** 08-Mar-16

SW-846 1020B

Batch R215657 **SampType:** LCS Units °F

SampID: LCS-R215657

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ignitability, Closed Cup	60		**82**	81.00	0	101.2	97	103	03/07/2016

Batch R215657 **SampType:** DUP Units °F RPD Limit 5

SampID: 16030382-001BDUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ignitability, Closed Cup	60		**131**				136.0	3.75	03/07/2016

Batch R215657 **SampType:** DUP Units °F RPD Limit 5

SampID: 16030382-004BDUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ignitability, Closed Cup	60		**71**				71.00	0.00	03/07/2016

Batch R215657 **SampType:** DUP Units °F RPD Limit 5

SampID: 16030382-008BDUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ignitability, Closed Cup	60		**76**				76.00	0.00	03/07/2016

Batch R215657 **SampType:** DUP Units °F RPD Limit 5

SampID: 16030382-009BDUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ignitability, Closed Cup	60		**<60**				0	0.00	03/07/2016

SW-846 3005A, 6010B, METALS BY ICP (TOTAL)

Batch 116922 **SampType:** MBLK Units mg/L

SampID: MBLK-116922

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	0.0150		**< 0.0150**	0.01500	0	0	-100	100	03/08/2016

Batch 116922 **SampType:** LCS Units mg/L

SampID: LCS-116922

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	0.0150		**0.512**	0.5000	0	102.5	85	115	03/08/2016

Client: Trihydro Corporation | **Work Order:** 16030420
Client Project: Soil Vapor System | **Report Date:** 08-Mar-16

SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 116925 **SampType:** MBLK Units **mg/L**
SampID: MBLK-116925

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1-Methylnaphthalene	0.00010		**ND**						03/08/2016
Acenaphthene	0.00010		**ND**						03/08/2016
Acenaphthylene	0.00010		**ND**						03/08/2016
Anthracene	0.00010		**ND**						03/08/2016
Benzo(a)anthracene	0.00010		**ND**						03/08/2016
Benzo(a)pyrene	0.00010		**ND**						03/08/2016
Benzo(b)fluoranthene	0.00010		**ND**						03/08/2016
Benzo(g,h,i)perylene	0.00010		**ND**						03/08/2016
Benzo(k)fluoranthene	0.00010		**ND**						03/08/2016
Chrysene	0.00010		**ND**						03/08/2016
Dibenzo(a,h)anthracene	0.00010		**ND**						03/08/2016
Fluoranthene	0.00010		**ND**						03/08/2016
Fluorene	0.00010		**ND**						03/08/2016
Indeno(1,2,3-cd)pyrene	0.00010		**ND**						03/08/2016
Naphthalene	0.00010		**ND**						03/08/2016
Phenanthrene	0.00010		**ND**						03/08/2016
Pyrene	0.00010		**ND**						03/08/2016
Surr: 2-Fluorobiphenyl			**0.00306**	0.005000		61.2	44.4	89.6	03/08/2016
Surr: Nitrobenzene-d5			**0.00286**	0.005000		57.2	40.9	81.4	03/08/2016
Surr: p-Terphenyl-d14			**0.00367**	0.005000		73.4	54.3	104	03/08/2016

Batch 116925 **SampType:** LCS Units **mg/L**
SampID: LCS-116925

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1-Methylnaphthalene	0.00010		**0.00371**	0.005000	0	74.2	38.8	96.6	03/08/2016
Acenaphthene	0.00010		**0.00381**	0.005000	0	76.2	46.6	96.4	03/08/2016
Acenaphthylene	0.00010		**0.00378**	0.005000	0	75.6	48.1	95.6	03/08/2016
Anthracene	0.00010		**0.00367**	0.005000	0	73.4	53.2	95.9	03/08/2016
Benzo(a)anthracene	0.00010		**0.00404**	0.005000	0	80.8	52.5	102	03/08/2016
Benzo(a)pyrene	0.00010		**0.00388**	0.005000	0	77.6	55.1	103	03/08/2016
Benzo(b)fluoranthene	0.00010		**0.00363**	0.005000	0	72.6	53.6	105	03/08/2016
Benzo(g,h,i)perylene	0.00010		**0.00413**	0.005000	0	82.6	46.3	110	03/08/2016
Benzo(k)fluoranthene	0.00010		**0.00389**	0.005000	0	77.8	53.8	104	03/08/2016
Chrysene	0.00010		**0.00426**	0.005000	0	85.2	51	101	03/08/2016
Dibenzo(a,h)anthracene	0.00010		**0.00402**	0.005000	0	80.4	49.4	110	03/08/2016
Fluoranthene	0.00010		**0.00376**	0.005000	0	75.2	54.5	99.5	03/08/2016
Fluorene	0.00010		**0.00389**	0.005000	0	77.8	51.1	97.6	03/08/2016
Indeno(1,2,3-cd)pyrene	0.00010		**0.00401**	0.005000	0	80.2	48.6	110	03/08/2016
Naphthalene	0.00010		**0.00347**	0.005000	0	69.4	39.8	93.1	03/08/2016
Phenanthrene	0.00010		**0.00376**	0.005000	0	75.2	52.2	95.9	03/08/2016
Pyrene	0.00010		**0.00368**	0.005000	0	73.6	53.4	99.1	03/08/2016
Surr: 2-Fluorobiphenyl			**0.00341**	0.005000		68.2	44.4	89.6	03/08/2016
Surr: Nitrobenzene-d5			**0.00356**	0.005000		71.2	40.9	81.4	03/08/2016
Surr: p-Terphenyl-d14			**0.00415**	0.005000		83.0	54.3	104	03/08/2016

Client: Trihydro Corporation **Work Order:** 16030420

Client Project: Soil Vapor System **Report Date:** 08-Mar-16

SW-846 3510C, 8270C SIMS, SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 116925 **SampType:** LCSD Units **mg/L** RPD Limit **40**

SampID: LCSD-116925

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1-Methylnaphthalene	0.00010		**0.00311**	).00500(	0	62.2	0.003710	17.60	03/08/2016
Acenaphthene	0.00010		**0.00322**	).00500(	0	64.4	0.003810	16.79	03/08/2016
Acenaphthylene	0.00010		**0.00318**	).00500(	0	63.6	0.003780	17.24	03/08/2016
Anthracene	0.00010		**0.00313**	).00500(	0	62.6	0.003670	15.88	03/08/2016
Benzo(a)anthracene	0.00010		**0.00319**	).00500(	0	63.8	0.004040	23.51	03/08/2016
Benzo(a)pyrene	0.00010		**0.00325**	).00500(	0	65.0	0.003880	17.67	03/08/2016
Benzo(b)fluoranthene	0.00010		**0.00296**	).00500(	0	59.2	0.003630	20.33	03/08/2016
Benzo(g,h,i)perylene	0.00010		**0.00343**	).00500(	0	68.6	0.004130	18.52	03/08/2016
Benzo(k)fluoranthene	0.00010		**0.00335**	).00500(	0	67.0	0.003890	14.92	03/08/2016
Chrysene	0.00010		**0.00334**	).00500(	0	66.8	0.004260	24.21	03/08/2016
Dibenzo(a,h)anthracene	0.00010		**0.00334**	).00500(	0	66.8	0.004020	18.48	03/08/2016
Fluoranthene	0.00010		**0.00311**	).00500(	0	62.2	0.003760	18.92	03/08/2016
Fluorene	0.00010		**0.00325**	).00500(	0	65.0	0.003890	17.93	03/08/2016
Indeno(1,2,3-cd)pyrene	0.00010		**0.00333**	).00500(	0	66.6	0.004010	18.53	03/08/2016
Naphthalene	0.00010		**0.00294**	).00500(	0	58.8	0.003470	16.54	03/08/2016
Phenanthrene	0.00010		**0.00315**	).00500(	0	63.0	0.003760	17.66	03/08/2016
Pyrene	0.00010		**0.00304**	).00500(	0	60.8	0.003680	19.05	03/08/2016
Surr: 2-Fluorobiphenyl			**0.00271**	).00500(		54.2			03/08/2016
Surr: Nitrobenzene-d5			**0.00289**	).00500(		57.8			03/08/2016
Surr: p-Terphenyl-d14			**0.00335**	).00500(		67.0			03/08/2016

Client: Trihydro Corporation **Work Order:** 16030420

Client Project: Soil Vapor System **Report Date:** 08-Mar-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 116960 **SampType:** MBLK Units µg/L

SampID: MBLK-T160308-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1,2-Tetrachloroethane	5.0		**ND**						03/08/2016
1,1,1-Trichloroethane	5.0		**ND**						03/08/2016
1,1,2,2-Tetrachloroethane	5.0		**ND**						03/08/2016
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0		**ND**						03/08/2016
1,1,2-Trichloroethane	5.0		**ND**						03/08/2016
1,1-Dichloro-2-propanone	50.0		**ND**						03/08/2016
1,1-Dichloroethane	5.0		**ND**						03/08/2016
1,1-Dichloroethene	5.0		**ND**						03/08/2016
1,1-Dichloropropene	5.0		**ND**						03/08/2016
1,2,3-Trichlorobenzene	5.0		**ND**						03/08/2016
1,2,3-Trichloropropane	5.0		**ND**						03/08/2016
1,2,3-Trimethylbenzene	5.0		**ND**						03/08/2016
1,2,4-Trichlorobenzene	5.0		**ND**						03/08/2016
1,2,4-Trimethylbenzene	5.0		**ND**						03/08/2016
1,2-Dibromo-3-chloropropane	5.0		**ND**						03/08/2016
1,2-Dibromoethane	5.0		**ND**						03/08/2016
1,2-Dichlorobenzene	5.0		**ND**						03/08/2016
1,2-Dichloroethane	5.0		**ND**						03/08/2016
1,2-Dichloropropane	5.0		**ND**						03/08/2016
1,3,5-Trimethylbenzene	5.0		**ND**						03/08/2016
1,3-Dichlorobenzene	5.0		**ND**						03/08/2016
1,3-Dichloropropane	5.0		**ND**						03/08/2016
1,4-Dichlorobenzene	5.0		**ND**						03/08/2016
1-Chlorobutane	5.0		**ND**						03/08/2016
2,2-Dichloropropane	5.0		**ND**						03/08/2016
2-Butanone	25.0		**ND**						03/08/2016
2-Chloroethyl vinyl ether	20.0		**ND**						03/08/2016
2-Chlorotoluene	5.0		**ND**						03/08/2016
2-Hexanone	25.0		**ND**						03/08/2016
2-Nitropropane	50.0		**ND**						03/08/2016
4-Chlorotoluene	5.0		**ND**						03/08/2016
4-Methyl-2-pentanone	25.0		**ND**						03/08/2016
Acetone	25.0		**ND**						03/08/2016
Acetonitrile	50.0		**ND**						03/08/2016
Acrolein	100		**ND**						03/08/2016
Acrylonitrile	5.0		**ND**						03/08/2016
Allyl chloride	5.0		**ND**						03/08/2016
Benzene	2.0		**ND**						03/08/2016
Bromobenzene	5.0		**ND**						03/08/2016
Bromochloromethane	5.0		**ND**						03/08/2016
Bromodichloromethane	5.0		**ND**						03/08/2016
Bromoform	5.0		**ND**						03/08/2016
Bromomethane	10.0		**ND**						03/08/2016
Carbon disulfide	5.0		**ND**						03/08/2016
Carbon tetrachloride	5.0		**ND**						03/08/2016
Chlorobenzene	5.0		**ND**						03/08/2016
Chloroethane	10.0		**ND**						03/08/2016

Teklab, Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Trihydro Corporation
Work Order: 16030420
Client Project: Soil Vapor System
Report Date: 08-Mar-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 116960 **SampType:** MBLK Units **µg/L**
SampID: MBLK-T160308-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloroform	5.0		**ND**						03/08/2016
Chloromethane	10.0		**ND**						03/08/2016
Chloroprene	20.0		**ND**						03/08/2016
cis-1,2-Dichloroethene	5.0		**ND**						03/08/2016
cis-1,3-Dichloropropene	5.0		**ND**						03/08/2016
cis-1,4-Dichloro-2-butene	5.0		**ND**						03/08/2016
Cyclohexanone	50.0		**ND**						03/08/2016
Dibromochloromethane	5.0		**ND**						03/08/2016
Dibromomethane	5.0		**ND**						03/08/2016
Dichlorodifluoromethane	10.0		**ND**						03/08/2016
Ethyl acetate	10.0		**ND**						03/08/2016
Ethyl ether	5.0		**ND**						03/08/2016
Ethyl methacrylate	5.0		**ND**						03/08/2016
Ethylbenzene	5.0		**ND**						03/08/2016
Hexachlorobutadiene	5.0		**ND**						03/08/2016
Hexachloroethane	10.0		**ND**						03/08/2016
Iodomethane	5.0	J	**2.7**						03/08/2016
Isopropylbenzene	5.0		**ND**						03/08/2016
m,p-Xylenes	5.0		**ND**						03/08/2016
Methacrylonitrile	10.0		**ND**						03/08/2016
Methyl Methacrylate	5.0		**ND**						03/08/2016
Methyl tert-butyl ether	2.0		**ND**						03/08/2016
Methylacrylate	10.0		**ND**						03/08/2016
Methylene chloride	5.0		**ND**						03/08/2016
Naphthalene	10.0		**ND**						03/08/2016
n-Butyl acetate	25.0		**ND**						03/08/2016
n-Butylbenzene	5.0		**ND**						03/08/2016
n-Heptane	20.0		**ND**						03/08/2016
n-Hexane	20.0		**ND**						03/08/2016
Nitrobenzene	50.0		**ND**						03/08/2016
n-Propylbenzene	5.0		**ND**						03/08/2016
o-Xylene	5.0		**ND**						03/08/2016
Pentachloroethane	20.0		**ND**						03/08/2016
p-Isopropyltoluene	5.0		**ND**						03/08/2016
Propionitrile	50.0		**ND**						03/08/2016
sec-Butylbenzene	5.0		**ND**						03/08/2016
Styrene	5.0		**ND**						03/08/2016
tert-Butylbenzene	5.0		**ND**						03/08/2016
Tetrachloroethene	5.0		**ND**						03/08/2016
Tetrahydrofuran	20.0		**ND**						03/08/2016
Toluene	5.0		**ND**						03/08/2016
trans-1,2-Dichloroethene	5.0		**ND**						03/08/2016
trans-1,3-Dichloropropene	5.0		**ND**						03/08/2016
trans-1,4-Dichloro-2-butene	10.0		**ND**						03/08/2016
Trichloroethene	5.0		**ND**						03/08/2016
Trichlorofluoromethane	5.0		**ND**						03/08/2016
Vinyl acetate	10.0		**ND**						03/08/2016

Client: Trihydro Corporation

Client Project: Soil Vapor System

Work Order: 16030420

Report Date: 08-Mar-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 116960 **SampType:** MBLK Units **µg/L**

SampID: MBLK-T160308-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Vinyl chloride	2.0		**ND**						03/08/2016
Surr: 1,2-Dichloroethane-d4			**49.6**	50.00		99.1	74.7	129	03/08/2016
Surr: 4-Bromofluorobenzene			**50.0**	50.00		100.1	86	119	03/08/2016
Surr: Dibromofluoromethane			**47.3**	50.00		94.6	81.7	123	03/08/2016
Surr: Toluene-d8			**50.2**	50.00		100.4	84.3	114	03/08/2016

Client: Trihydro Corporation **Work Order:** 16030420

Client Project: Soil Vapor System **Report Date:** 08-Mar-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 116960 **SampType:** LCSD Units µg/L RPD Limit 40

SampID: LCSD-T160308-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1,1,2-Tetrachloroethane	5.0		**51.2**	50.00	0	102.3	49.95	2.39	03/08/2016
1,1,1-Trichloroethane	5.0		**49.4**	50.00	0	98.9	47.47	4.09	03/08/2016
1,1,2,2-Tetrachloroethane	5.0		**46.6**	50.00	0	93.1	47.35	1.70	03/08/2016
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0		**45.6**	50.00	0	91.2	43.21	5.43	03/08/2016
1,1,2-Trichloroethane	5.0		**49.2**	50.00	0	98.3	48.67	0.98	03/08/2016
1,1-Dichloro-2-propanone	50.0		**92.6**	125.0	0	74.1	95.19	2.73	03/08/2016
1,1-Dichloroethane	5.0		**51.7**	50.00	0	103.4	50.70	1.97	03/08/2016
1,1-Dichloroethene	5.0		**47.5**	50.00	0	95.0	45.23	4.85	03/08/2016
1,1-Dichloropropene	5.0		**48.9**	50.00	0	97.8	46.66	4.65	03/08/2016
1,2,3-Trichlorobenzene	5.0		**46.0**	50.00	0	92.0	45.39	1.33	03/08/2016
1,2,3-Trichloropropane	5.0		**43.5**	50.00	0	87.1	43.53	0.00	03/08/2016
1,2,3-Trimethylbenzene	5.0		**50.4**	50.00	0	100.8	48.66	3.55	03/08/2016
1,2,4-Trichlorobenzene	5.0		**46.9**	50.00	0	93.8	45.86	2.28	03/08/2016
1,2,4-Trimethylbenzene	5.0		**51.9**	50.00	0	103.8	49.59	4.53	03/08/2016
1,2-Dibromo-3-chloropropane	5.0		**38.2**	50.00	0	76.4	39.67	3.75	03/08/2016
1,2-Dibromoethane	5.0		**47.7**	50.00	0	95.5	48.57	1.74	03/08/2016
1,2-Dichlorobenzene	5.0		**47.0**	50.00	0	93.9	45.48	3.22	03/08/2016
1,2-Dichloroethane	5.0		**48.6**	50.00	0	97.3	47.48	2.41	03/08/2016
1,2-Dichloropropane	5.0		**48.8**	50.00	0	97.5	48.11	1.36	03/08/2016
1,3,5-Trimethylbenzene	5.0		**52.2**	50.00	0	104.4	49.76	4.77	03/08/2016
1,3-Dichlorobenzene	5.0		**48.8**	50.00	0	97.6	46.84	4.08	03/08/2016
1,3-Dichloropropane	5.0		**47.6**	50.00	0	95.3	47.90	0.54	03/08/2016
1,4-Dichlorobenzene	5.0		**48.2**	50.00	0	96.5	46.70	3.22	03/08/2016
1-Chlorobutane	5.0		**48.7**	50.00	0	97.5	46.81	4.04	03/08/2016
2,2-Dichloropropane	5.0		**52.0**	50.00	0	104.1	50.49	3.00	03/08/2016
2-Butanone	25.0		**93.1**	125.0	0	74.5	99.53	6.69	03/08/2016
2-Chloroethyl vinyl ether	20.0		**50.4**	50.00	0	100.8	51.81	2.74	03/08/2016
2-Chlorotoluene	5.0		**50.6**	50.00	0	101.2	48.74	3.71	03/08/2016
2-Hexanone	25.0		**104**	125.0	0	82.9	108.8	4.83	03/08/2016
2-Nitropropane	50.0		**441**	500.0	0	88.1	464.3	5.23	03/08/2016
4-Chlorotoluene	5.0		**51.5**	50.00	0	103.1	49.18	4.67	03/08/2016
4-Methyl-2-pentanone	25.0		**105**	125.0	0	84.2	109.6	4.05	03/08/2016
Acetone	25.0		**89.1**	125.0	0	71.3	97.12	8.61	03/08/2016
Acetonitrile	50.0		**388**	500.0	0	77.6	407.9	5.05	03/08/2016
Acrolein	100		**424**	500.0	0	84.8	461.8	8.52	03/08/2016
Acrylonitrile	5.0		**40.8**	50.00	0	81.6	43.62	6.71	03/08/2016
Allyl chloride	5.0		**50.8**	50.00	0	101.6	49.93	1.73	03/08/2016
Benzene	2.0		**48.1**	50.00	0	96.2	46.76	2.78	03/08/2016
Bromobenzene	5.0		**49.0**	50.00	0	98.0	48.72	0.59	03/08/2016
Bromochloromethane	5.0		**50.0**	50.00	0	99.9	48.47	3.05	03/08/2016
Bromodichloromethane	5.0		**49.8**	50.00	0	99.7	49.20	1.29	03/08/2016
Bromoform	5.0		**48.2**	50.00	0	96.3	48.64	0.99	03/08/2016
Bromomethane	10.0		**39.5**	50.00	0	79.0	35.50	10.69	03/08/2016
Carbon disulfide	5.0		**45.7**	50.00	0	91.4	43.56	4.84	03/08/2016
Carbon tetrachloride	5.0		**50.0**	50.00	0	100.0	47.55	5.00	03/08/2016
Chlorobenzene	5.0		**48.6**	50.00	0	97.2	47.23	2.84	03/08/2016
Chloroethane	10.0		**42.2**	50.00	0	84.4	40.62	3.82	03/08/2016

Client: Trihydro Corporation **Work Order:** 16030420

Client Project: Soil Vapor System **Report Date:** 08-Mar-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 116960 **SampType:** LCSD Units µg/L RPD Limit 40

SampID: LCSD-T160308-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloroform	5.0		**48.6**	50.00	0	97.1	46.97	3.35	03/08/2016
Chloromethane	10.0		**42.8**	50.00	0	85.6	42.20	1.41	03/08/2016
Chloroprene	20.0		**49.1**	50.00	0	98.1	47.33	3.61	03/08/2016
cis-1,2-Dichloroethene	5.0		**49.7**	50.00	0	99.4	48.15	3.19	03/08/2016
cis-1,3-Dichloropropene	5.0		**50.8**	50.00	0	101.5	49.94	1.63	03/08/2016
cis-1,4-Dichloro-2-butene	5.0		**52.6**	50.00	0	105.2	53.23	1.23	03/08/2016
Cyclohexanone	50.0		**344**	500.0	0	68.8	356.7	3.58	03/08/2016
Dibromochloromethane	5.0		**51.9**	50.00	0	103.7	50.80	2.08	03/08/2016
Dibromomethane	5.0		**45.6**	50.00	0	91.2	45.35	0.55	03/08/2016
Dichlorodifluoromethane	10.0		**33.2**	50.00	0	66.5	31.59	5.12	03/08/2016
Ethyl acetate	10.0		**40.6**	50.00	0	81.3	41.82	2.84	03/08/2016
Ethyl ether	5.0		**45.9**	50.00	0	91.7	44.74	2.47	03/08/2016
Ethyl methacrylate	5.0		**49.8**	50.00	0	99.6	50.36	1.10	03/08/2016
Ethylbenzene	5.0		**49.2**	50.00	0	98.4	47.74	3.05	03/08/2016
Hexachlorobutadiene	5.0		**46.3**	50.00	0	92.5	45.13	2.47	03/08/2016
Hexachloroethane	10.0		**49.7**	50.00	0	99.4	47.42	4.70	03/08/2016
Iodomethane	5.0		**44.2**	50.00	0	88.3	41.33	6.62	03/08/2016
Isopropylbenzene	5.0		**53.6**	50.00	0	107.2	51.88	3.28	03/08/2016
m,p-Xylenes	5.0		**103**	100.0	0	102.9	99.79	3.04	03/08/2016
Methacrylonitrile	10.0		**43.2**	50.00	0	86.5	43.59	0.83	03/08/2016
Methyl Methacrylate	5.0		**47.0**	50.00	0	94.1	48.14	2.31	03/08/2016
Methyl tert-butyl ether	2.0		**48.1**	50.00	0	96.2	47.50	1.28	03/08/2016
Methylacrylate	10.0		**43.8**	50.00	0	87.7	46.10	5.00	03/08/2016
Methylene chloride	5.0		**47.9**	50.00	0	95.8	46.95	2.04	03/08/2016
Naphthalene	10.0		**44.4**	50.00	0	88.7	45.00	1.43	03/08/2016
n-Butyl acetate	25.0		**46.9**	50.00	0	93.9	47.65	1.50	03/08/2016
n-Butylbenzene	5.0		**49.7**	50.00	0	99.3	47.60	4.24	03/08/2016
n-Heptane	20.0		**53.3**	50.00	0	106.6	51.42	3.61	03/08/2016
n-Hexane	20.0		**49.9**	50.00	0	99.7	48.08	3.65	03/08/2016
Nitrobenzene	50.0		**318**	500.0	0	63.5	335.5	5.49	03/08/2016
n-Propylbenzene	5.0		**51.5**	50.00	0	103.0	49.39	4.16	03/08/2016
o-Xylene	5.0		**49.4**	50.00	0	98.8	48.30	2.27	03/08/2016
Pentachloroethane	20.0		**51.4**	50.00	0	102.8	49.97	2.78	03/08/2016
p-Isopropyltoluene	5.0		**52.1**	50.00	0	104.2	49.67	4.81	03/08/2016
Propionitrile	50.0		**380**	500.0	0	76.0	401.5	5.47	03/08/2016
sec-Butylbenzene	5.0		**51.8**	50.00	0	103.6	49.35	4.86	03/08/2016
Styrene	5.0		**54.0**	50.00	0	108.1	52.36	3.14	03/08/2016
tert-Butylbenzene	5.0		**51.1**	50.00	0	102.2	49.10	4.01	03/08/2016
Tetrachloroethene	5.0		**50.0**	50.00	0	99.9	47.86	4.27	03/08/2016
Tetrahydrofuran	20.0		**36.9**	50.00	0	73.8	39.69	7.29	03/08/2016
Toluene	5.0		**48.4**	50.00	0	96.8	47.04	2.89	03/08/2016
trans-1,2-Dichloroethene	5.0		**49.4**	50.00	0	98.8	47.82	3.29	03/08/2016
trans-1,3-Dichloropropene	5.0		**51.7**	50.00	0	103.4	51.64	0.15	03/08/2016
trans-1,4-Dichloro-2-butene	10.0		**47.8**	50.00	0	95.5	48.68	1.93	03/08/2016
Trichloroethene	5.0		**47.6**	50.00	0	95.3	46.05	3.39	03/08/2016
Trichlorofluoromethane	5.0		**46.4**	50.00	0	92.8	44.07	5.13	03/08/2016
Vinyl acetate	10.0		**52.1**	50.00	0	104.2	54.42	4.39	03/08/2016

Client: Trihydro Corporation
Client Project: Soil Vapor System

Work Order: 16030420
Report Date: 08-Mar-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch **116960** **SampType:** **LCSD** Units **µg/L** RPD Limit **40**

SampID: LCSD-T160308-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Vinyl chloride	2.0		**44.1**	50.00	0	88.2	42.15	4.54	03/08/2016
Surr: 1,2-Dichloroethane-d4			**51.2**	50.00		102.4			03/08/2016
Surr: 4-Bromofluorobenzene			**51.2**	50.00		102.4			03/08/2016
Surr: Dibromofluoromethane			**48.3**	50.00		96.6			03/08/2016
Surr: Toluene-d8			**50.0**	50.00		100.0			03/08/2016

Client: Trihydro Corporation **Work Order:** 16030420

Client Project: Soil Vapor System **Report Date:** 08-Mar-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 116960 **SampType:** LCS Units **µg/L**

SampID: LCS-T160308-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1,2-Tetrachloroethane	5.0		**50.0**	50.00	0	99.9	81.9	115	03/08/2016
1,1,1-Trichloroethane	5.0		**47.5**	50.00	0	94.9	79.4	124	03/08/2016
1,1,2,2-Tetrachloroethane	5.0		**47.4**	50.00	0	94.7	74.7	116	03/08/2016
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0		**43.2**	50.00	0	86.4	72.9	121	03/08/2016
1,1,2-Trichloroethane	5.0		**48.7**	50.00	0	97.3	80.8	111	03/08/2016
1,1-Dichloro-2-propanone	50.0		**95.2**	125.0	0	76.2	66.3	130	03/08/2016
1,1-Dichloroethane	5.0		**50.7**	50.00	0	101.4	79.4	114	03/08/2016
1,1-Dichloroethene	5.0		**45.2**	50.00	0	90.5	74.1	117	03/08/2016
1,1-Dichloropropene	5.0		**46.7**	50.00	0	93.3	81.7	116	03/08/2016
1,2,3-Trichlorobenzene	5.0		**45.4**	50.00	0	90.8	79.7	118	03/08/2016
1,2,3-Trichloropropane	5.0		**43.5**	50.00	0	87.1	77.3	112	03/08/2016
1,2,3-Trimethylbenzene	5.0		**48.7**	50.00	0	97.3	79.9	119	03/08/2016
1,2,4-Trichlorobenzene	5.0		**45.9**	50.00	0	91.7	79.3	118	03/08/2016
1,2,4-Trimethylbenzene	5.0		**49.6**	50.00	0	99.2	78.7	115	03/08/2016
1,2-Dibromo-3-chloropropane	5.0		**39.7**	50.00	0	79.3	76	122	03/08/2016
1,2-Dibromoethane	5.0		**48.6**	50.00	0	97.1	80.8	114	03/08/2016
1,2-Dichlorobenzene	5.0		**45.5**	50.00	0	91.0	78.3	112	03/08/2016
1,2-Dichloroethane	5.0		**47.5**	50.00	0	95.0	70.6	118	03/08/2016
1,2-Dichloropropane	5.0		**48.1**	50.00	0	96.2	79.6	113	03/08/2016
1,3,5-Trimethylbenzene	5.0		**49.8**	50.00	0	99.5	77.5	115	03/08/2016
1,3-Dichlorobenzene	5.0		**46.8**	50.00	0	93.7	78.6	117	03/08/2016
1,3-Dichloropropane	5.0		**47.9**	50.00	0	95.8	78.8	112	03/08/2016
1,4-Dichlorobenzene	5.0		**46.7**	50.00	0	93.4	77.8	114	03/08/2016
1-Chlorobutane	5.0		**46.8**	50.00	0	93.6	78.6	115	03/08/2016
2,2-Dichloropropane	5.0		**50.5**	50.00	0	101.0	74.9	130	03/08/2016
2-Butanone	25.0		**99.5**	125.0	0	79.6	70.7	136	03/08/2016
2-Chloroethyl vinyl ether	20.0		**51.8**	50.00	0	103.6	52.5	145	03/08/2016
2-Chlorotoluene	5.0		**48.7**	50.00	0	97.5	77.4	114	03/08/2016
2-Hexanone	25.0		**109**	125.0	0	87.0	73.3	125	03/08/2016
2-Nitropropane	50.0		**464**	500.0	0	92.9	67.3	139	03/08/2016
4-Chlorotoluene	5.0		**49.2**	50.00	0	98.4	78.3	115	03/08/2016
4-Methyl-2-pentanone	25.0		**110**	125.0	0	87.7	76.3	122	03/08/2016
Acetone	25.0		**97.1**	125.0	0	77.7	56.4	147	03/08/2016
Acetonitrile	50.0		**408**	500.0	0	81.6	59.3	129	03/08/2016
Acrolein	100		**462**	500.0	0	92.4	1	201	03/08/2016
Acrylonitrile	5.0		**43.6**	50.00	0	87.2	74.1	128	03/08/2016
Allyl chloride	5.0		**49.9**	50.00	0	99.9	71.5	123	03/08/2016
Benzene	2.0		**46.8**	50.00	0	93.5	80	114	03/08/2016
Bromobenzene	5.0		**48.7**	50.00	0	97.4	73.2	118	03/08/2016
Bromochloromethane	5.0		**48.5**	50.00	0	96.9	73.3	121	03/08/2016
Bromodichloromethane	5.0		**49.2**	50.00	0	98.4	81.6	121	03/08/2016
Bromoform	5.0		**48.6**	50.00	0	97.3	83.1	127	03/08/2016
Bromomethane	10.0		**35.5**	50.00	0	71.0	44.4	154	03/08/2016
Carbon disulfide	5.0		**43.6**	50.00	0	87.1	73.2	118	03/08/2016
Carbon tetrachloride	5.0		**47.6**	50.00	0	95.1	79.4	130	03/08/2016
Chlorobenzene	5.0		**47.2**	50.00	0	94.5	81.4	110	03/08/2016
Chloroethane	10.0		**40.6**	50.00	0	81.2	52.1	137	03/08/2016

Client: Trihydro Corporation **Work Order:** 16030420

Client Project: Soil Vapor System **Report Date:** 08-Mar-16

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 116960 **SampType:** LCS Units **µg/L**

SampID: LCS-T160308-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloroform	5.0		**47.0**	50.00	0	93.9	82.7	116	03/08/2016
Chloromethane	10.0		**42.2**	50.00	0	84.4	48.2	144	03/08/2016
Chloroprene	20.0		**47.3**	50.00	0	94.7	80.6	126	03/08/2016
cis-1,2-Dichloroethene	5.0		**48.2**	50.00	0	96.3	78.2	116	03/08/2016
cis-1,3-Dichloropropene	5.0		**49.9**	50.00	0	99.9	83	119	03/08/2016
cis-1,4-Dichloro-2-butene	5.0		**53.2**	50.00	0	106.5	60.7	137	03/08/2016
Cyclohexanone	50.0		**357**	500.0	0	71.3	54.2	145	03/08/2016
Dibromochloromethane	5.0		**50.8**	50.00	0	101.6	81.2	121	03/08/2016
Dibromomethane	5.0		**45.4**	50.00	0	90.7	78.3	118	03/08/2016
Dichlorodifluoromethane	10.0		**31.6**	50.00	0	63.2	20.6	154	03/08/2016
Ethyl acetate	10.0		**41.8**	50.00	0	83.6	73.1	116	03/08/2016
Ethyl ether	5.0		**44.7**	50.00	0	89.5	75.2	109	03/08/2016
Ethyl methacrylate	5.0		**50.4**	50.00	0	100.7	80.1	113	03/08/2016
Ethylbenzene	5.0		**47.7**	50.00	0	95.5	77.2	113	03/08/2016
Hexachlorobutadiene	5.0		**45.1**	50.00	0	90.3	77.3	123	03/08/2016
Hexachloroethane	10.0		**47.4**	50.00	0	94.8	74.6	117	03/08/2016
Iodomethane	5.0		**41.3**	50.00	0	82.7	61.3	140	03/08/2016
Isopropylbenzene	5.0		**51.9**	50.00	0	103.8	81.3	114	03/08/2016
m,p-Xylenes	5.0		**99.8**	100.0	0	99.8	79.6	113	03/08/2016
Methacrylonitrile	10.0		**43.6**	50.00	0	87.2	77.2	125	03/08/2016
Methyl Methacrylate	5.0		**48.1**	50.00	0	96.3	74.2	121	03/08/2016
Methyl tert-butyl ether	2.0		**47.5**	50.00	0	95.0	76.8	117	03/08/2016
Methylacrylate	10.0		**46.1**	50.00	0	92.2	78	124	03/08/2016
Methylene chloride	5.0		**47.0**	50.00	0	93.9	74.1	114	03/08/2016
Naphthalene	10.0		**45.0**	50.00	0	90.0	77.9	122	03/08/2016
n-Butyl acetate	25.0		**47.6**	50.00	0	95.3	74	120	03/08/2016
n-Butylbenzene	5.0		**47.6**	50.00	0	95.2	71.1	120	03/08/2016
n-Heptane	20.0		**51.4**	50.00	0	102.8	67.4	129	03/08/2016
n-Hexane	20.0		**48.1**	50.00	0	96.2	68.4	126	03/08/2016
Nitrobenzene	50.0		**335**	500.0	0	67.1	37.9	181	03/08/2016
n-Propylbenzene	5.0		**49.4**	50.00	0	98.8	74.6	118	03/08/2016
o-Xylene	5.0		**48.3**	50.00	0	96.6	80.1	111	03/08/2016
Pentachloroethane	20.0		**50.0**	50.00	0	99.9	78.8	117	03/08/2016
p-Isopropyltoluene	5.0		**49.7**	50.00	0	99.3	77.6	118	03/08/2016
Propionitrile	50.0		**402**	500.0	0	80.3	72.9	137	03/08/2016
sec-Butylbenzene	5.0		**49.4**	50.00	0	98.7	74.5	119	03/08/2016
Styrene	5.0		**52.4**	50.00	0	104.7	83.4	113	03/08/2016
tert-Butylbenzene	5.0		**49.1**	50.00	0	98.2	75.9	114	03/08/2016
Tetrachloroethene	5.0		**47.9**	50.00	0	95.7	72.5	125	03/08/2016
Tetrahydrofuran	20.0		**39.7**	50.00	0	79.4	69.6	125	03/08/2016
Toluene	5.0		**47.0**	50.00	0	94.1	77.5	113	03/08/2016
trans-1,2-Dichloroethene	5.0		**47.8**	50.00	0	95.6	79	114	03/08/2016
trans-1,3-Dichloropropene	5.0		**51.6**	50.00	0	103.3	78	115	03/08/2016
trans-1,4-Dichloro-2-butene	10.0		**48.7**	50.00	0	97.4	63.3	128	03/08/2016
Trichloroethene	5.0		**46.0**	50.00	0	92.1	84.4	114	03/08/2016
Trichlorofluoromethane	5.0		**44.1**	50.00	0	88.1	75.2	132	03/08/2016
Vinyl acetate	10.0		**54.4**	50.00	0	108.8	64.5	127	03/08/2016

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 116960 **SampType:** LCS Units **µg/L**

SampID: LCS-T160308-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Vinyl chloride	2.0		**42.2**	50.00	0	84.3	58	134	03/08/2016
Surr: 1,2-Dichloroethane-d4			**50.8**	50.00		101.7	74.7	129	03/08/2016
Surr: 4-Bromofluorobenzene			**50.7**	50.00		101.5	86	119	03/08/2016
Surr: Dibromofluoromethane			**48.2**	50.00		96.5	81.7	123	03/08/2016
Surr: Toluene-d8			**50.0**	50.00		100.0	84.1	114	03/08/2016

Batch 116960 **SampType:** MS Units **mg/L**

SampID: 16030387-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1-Dichloroethene	0.500		**4.80**	5.000	0	96.1	61.3	123	03/08/2016
1,2-Dichloroethane	0.500		**4.87**	5.000	0	97.4	71.5	116	03/08/2016
1,4-Dichlorobenzene	0.500		**4.66**	5.000	0	93.3	76.9	113	03/08/2016
2-Butanone	2.50		**3.58**	5.000	0	71.7	64.1	132	03/08/2016
Benzene	0.200		**4.85**	5.000	0.05100	96.1	81.5	113	03/08/2016
Carbon tetrachloride	0.500		**4.74**	5.000	0	94.9	55.5	125	03/08/2016
Chlorobenzene	0.500		**4.91**	5.000	0	98.2	81.8	111	03/08/2016
Chloroform	0.500		**4.65**	5.000	0	93.1	81	115	03/08/2016
Tetrachloroethene	0.500		**4.72**	5.000	0	94.3	61.7	114	03/08/2016
Trichloroethene	0.500		**4.80**	5.000	0	96.0	74.4	117	03/08/2016
Vinyl chloride	0.200		**5.01**	5.000	0	100.2	45.7	130	03/08/2016
Surr: 1,2-Dichloroethane-d4			**5.03**	5.000		100.5	74.7	129	03/08/2016
Surr: 4-Bromofluorobenzene			**5.01**	5.000		100.2	86	119	03/08/2016
Surr: Dibromofluoromethane			**4.74**	5.000		94.8	81.7	123	03/08/2016
Surr: Toluene-d8			**4.96**	5.000		99.2	84.3	114	03/08/2016

Teklab Inc. Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Trihydro Corporation

Client Project: Soil Vapor System

Work Order: 16030420

Report Date: 08-Mar-16

Carrier: Nick Harvey

Received By: AMD

Completed by: M. Kaminski
On: 07-Mar-16
Mary Anne Kaminski

Reviewed by: Elizabeth A. Hurley
On: 07-Mar-16
Elizabeth A. Hurley

Pages to follow: Chain of custody 1 Extra pages included 0

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C 5.22
Type of thermal preservation?	None ☐	Ice ☑	Blue Ice ☐	Dry Ice ☐
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Reported field parameters measured:	Field ☐	Lab ☐	NA ☑	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐		

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes ☑	No ☐	No VOA vials ☐	
Water - TOX containers have zero headspace?	Yes ☐	No ☐	No TOX containers ☑	
Water - pH acceptable upon receipt?	Yes ☑	No ☐	NA ☐	
NPDES/CWA TCN interferences checked/treated in the field?	Yes ☐	No ☐	NA ☑	

Any No responses must be detailed below or on the COC.

CHAIN OF CUSTODY

pg. ____ of ____ Work order # 16030420

TEKLAB, INC. 5445 Horseshoe Lake Road - Collinsville, IL 62234 - Phone: (618) 344-1004 - Fax: (618) 344-1005

Client:	Trihydro Corporation
Address:	1252 Commerce Drive
City / State / Zip	Laramie, WY 82070
Contact:	Todd Aseltyne
Phone:	(513) 429-7470
E-Mail:	taseltyne@trihydro.com
Fax:	

Samples on: ☑ ICE ☐ BLUE ICE ☐ NO ICE 5.22 °C

Preserved in: ☐ LAB ☑ FIELD

FOR LAB USE ONLY

ONE DAY TAT

Lab Notes amo 3.7.16

zero head space amo 3.7.16

Client Comments:

Teklab, Inc. Courier Pick Up

RUSH!

Are these samples known to be involved in litigation? If yes, a surcharge will apply ☐ Yes ☐ No

Are these samples known to be hazardous? ☐ Yes ☐ No

Are there any required reporting limits to be met on the requested analysis?. If yes, please provide limits in the comment section. ☐ Yes ☐ No

Project Name/Number	Sample Collector's Name
Soil Vapor System	Todd Hanford

Results Requested

☐ Standard ☐ 1-2 Day (100% Surcharge)

☑ Other 24hr ☐ 3 Day (50% Surcharge)

Billing Instructions

Lab Use Only	Sample Identification	Date/Time Sampled	UNPRES	HNO3	NaOH	H2SO4	HCL	MeOH	NaHSO4	OTHER	Aqueous	Drinking Water	Soil	Sludge	Special Waste	Groundwater	FPCC	Lead	PNAs	VOCs
16030420 001	Tank 3	3/7/16 830															X	X	X	X

Relinquished By	Date/Time	Received By	Date/Time
Todd Hanford	~~3/7/16~~ 3/7/16 850	[signature]	3/7/16 9:26
[signature]	3/7/16 1035	Amoo Diallo	3/7/16 1035

The individual signing this agreement on behalf of the client, acknowledges that he/she has read and understands the terms and conditions of this agreement, and that he/she has the authority to sign on behalf of the client.

BottleOrder: 29712

amo 3.7.16

APPENDIX E

Dec. 2015

2702 East Kemper Road
Cincinnati, Ohio 45241

Attention, Paul Michalski, P.G.

Data was collected recently at your facilities and the results of the analysis of this data are presented in the following report.

The contents of this report will highlight the equipment that poses potential problems and equipment that require repair work. Please note, repair work is not being requested for equipment whose defects have not yet been confirmed.

Most of the equipment monitored was operating satisfactorily; however, data collected on some of the equipment indicated potential problems might exist. Generally, each piece of equipment in your facility will fall into one of three categories.

1. No problems detected - equipment operating normally.

2. Data analysis indicates a potential problem condition - additional data may be required, equipment should be watched more closely.

3. Equipment defect has been confirmed - repair work has been requested to be performed at some point in time.

I will mention spectra and waveform, which pertain to the graphs you will be seeing in this report, and the explanations are,

Spectra, has the frequency and amplitude as to where the vibration is taking place and how bad it is. The horizontal line is frequency and the vertical line is amplitude. Spectra measurements are in in/sec velocity.

Time waveform, show impacts in the equipment, some repeatable and some random. The impacts are then transmitted to the spectra where it can be seen at certain frequencies. Time waveform measurements are in g's force or impacts.

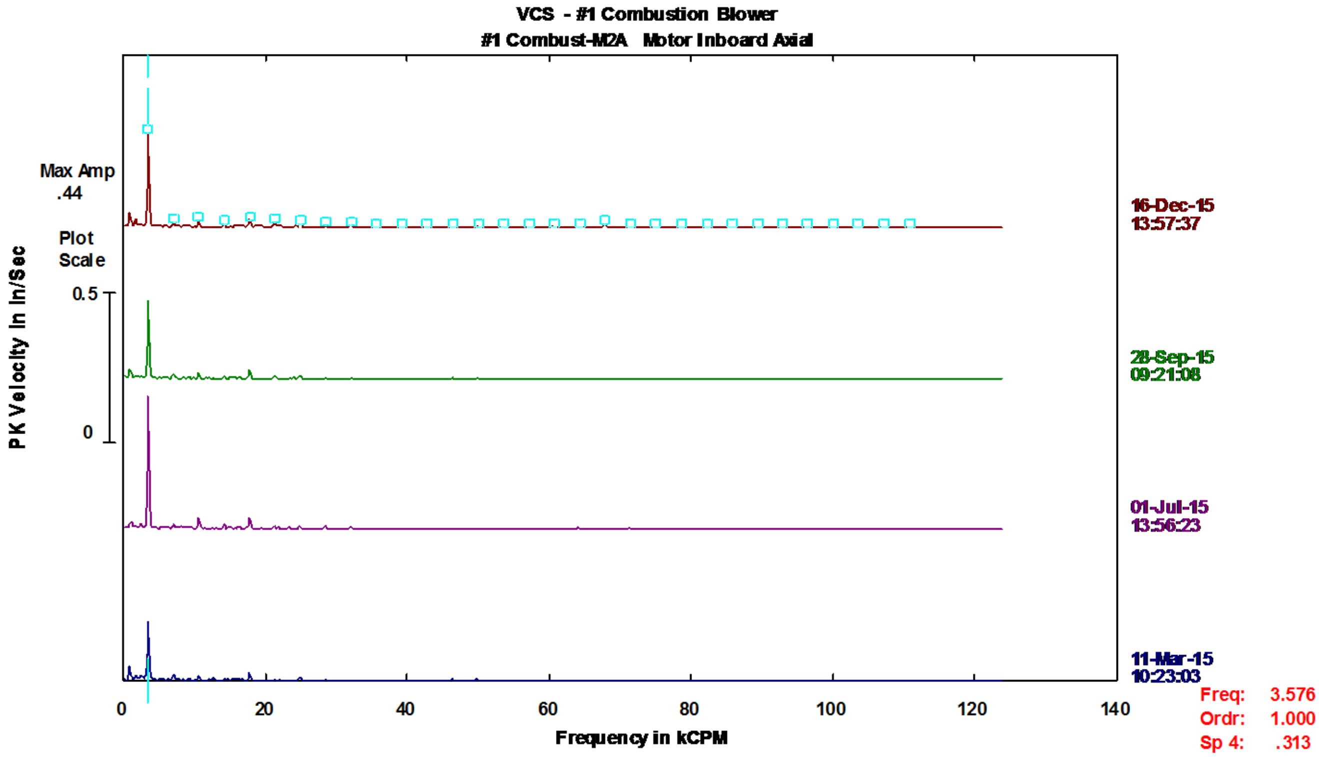
Sincerely, John J Meyers
Senior Reliability Analyst
Level III Vibration Certification
BRI, INC. *A Cogent Company*
jmeyers@bri-inc.com
Copy; Todd Hanford, Dave Meyer, Gary Erler, Sean Bulla, Chris Becker

4	**Corrective Measures required at next scheduled maintenance period or as permits, continue to trend for further analysis.**
3	**Corrective measures required on a priority basis.**
2	**Corrective Measures required ASAP depending on the equipment's process importance and redundant equipment availability.**
1	**Corrective measures required immediately.**

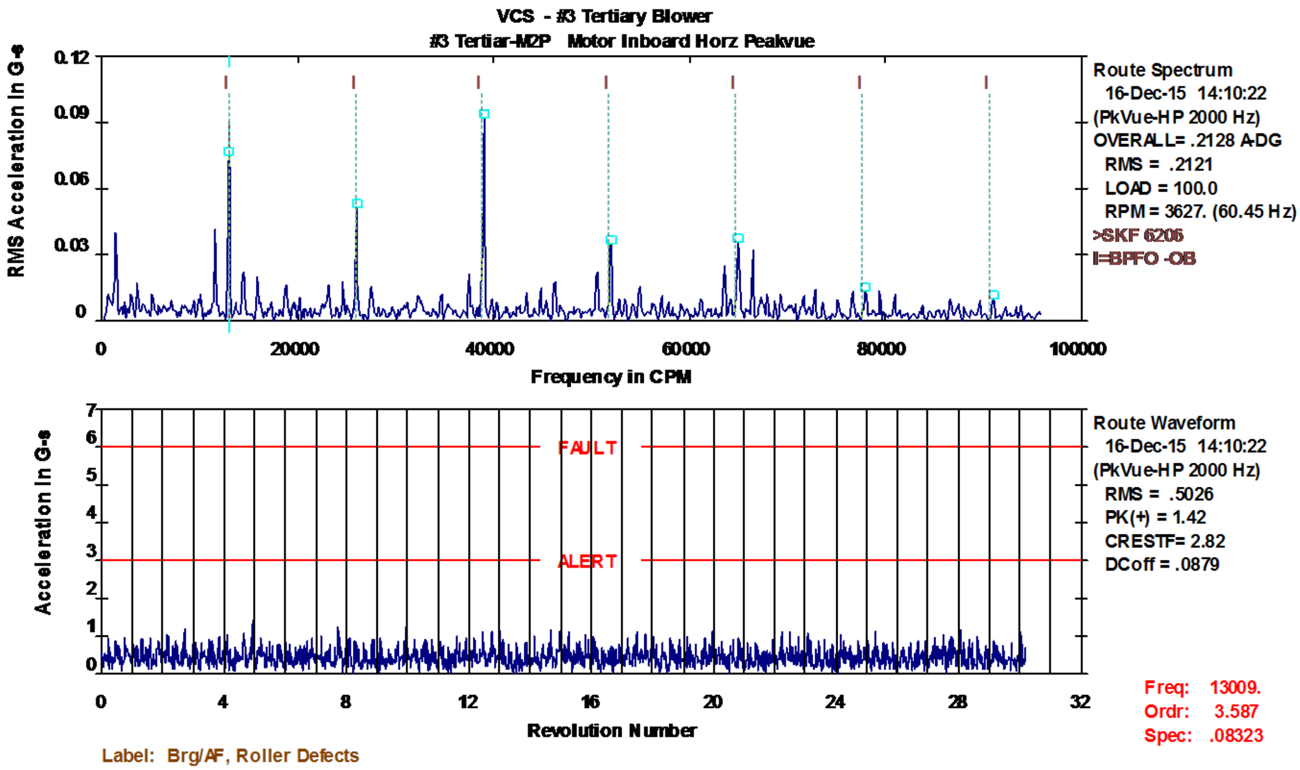
Potential Problem Equipment

No Corrective Action required at this time.
#1 Combustion Blower vibrations are moderate at this time. See the first attached sheet. We can continue to monitor fir trend increases
.
Priority 4 Corrective Measures required at next scheduled maintenance period or as permits, continue to trend for further analysis.
#3 Tertiary Fan has impacts in the time waveform that match the outer race of the 6206 and 6208 bearings installed. See the second attached sheet. Let’s grease the motor bearings and recheck them next visit.

All the other equipment is running Ok at this time. #3 Vacuum Pump was out for repair.



The top spectrum shows a moderate amount of vibration this monitoring, but we can continue to monitor for trend increases.



The vertical I lines in the spectrum above are the outer race frequencies of the 6206 and 6208 bearings installed. Peakvue spectra are an early look at bearing defects or dryness. Let's grease the bearings and recheck them next visit.

APPENDIX F

APPENDIX F. WEEKLY IN-HOME EFFECTIVENESS MONITORING DETECTIONS SUMMARY
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location Group	Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
107WBirch	107WBirch-Basement	02/10/16	0.0	0.0	--	--	0.0
107WBirch	107WBirch-Floor drain Basement for sink	02/10/16	0.0	0.0	--	--	0.0
107WBirch	107WBirch-Crawl Space under family room	02/10/16	0.0	0.0	--	--	0.0
107WBirch	107WBirch-Living Room	02/10/16	0.0	0.0	--	--	0.0
107WBirch	107WBirch-Shower floor drain Basement	02/10/16	0.0	0.0	--	--	0.0
107WBirch	107WBirch-SS1	02/10/16	0.0	0.0	19.8	0.00	0.0
107WBirch	107WBirch-SS2	02/10/16	0.0	0.0	19.9	0.00	0.0
107WBirch	107WBirch-SS3	02/10/16	1.0	0.0	20.9	0.00	0.0
117WBirch	117WBirch-Back/N porch	10/07/15	1.3	0.0	--	--	--
117WBirch	117WBirch-Basement	10/07/15	3.7	0.0	--	--	--
117WBirch	117WBirch-Floor Drain	10/07/15	3.8	0.0	--	--	--
117WBirch	117WBirch-SS1	10/07/15	0.0	0.0	20.9	0.00	0.0
117WBirch	117WBirch-SS2	10/07/15	0.0	0.0	20.5	0.00	0.0
117WBirch	117WBirch-SS3	10/07/15	0.0	0.0	17.5	0.00	0.0
117WBirch	117WBirch-Back/N porch	10/14/15	0.0	0.0	--	--	--
117WBirch	117WBirch-Basement	10/14/15	3.4	0.0	--	--	--
117WBirch	117WBirch-Floor Drain	10/14/15	3.0	0.0	--	--	--
117WBirch	117WBirch-SS1	10/14/15	0.0	0.0	20.9	0.00	0.0
117WBirch	117WBirch-SS2	10/14/15	0.0	0.0	20.9	0.00	0.0
117WBirch	117WBirch-SS3	10/14/15	0.0	0.0	18.1	0.00	0.0
117WBirch	117WBirch-Back/N porch	10/21/15	1.4	0.0	--	--	--
117WBirch	117WBirch-Basement	10/21/15	3.2	0.0	--	--	--
117WBirch	117WBirch-Floor Drain	10/21/15	3.3	0.0	--	--	--
117WBirch	117WBirch-SS1	10/21/15	0.0	0.0	20.9	0.00	0.0
117WBirch	117WBirch-SS2	10/21/15	0.0	0.0	20.9	0.00	0.0
117WBirch	117WBirch-SS3	10/21/15	0.0	0.0	17.8	0.00	0.0
117WBirch	117WBirch-Back/N porch	10/28/15	2.5	0.0	--	--	0.0
117WBirch	117WBirch-Basement	10/28/15	2.7	0.0	--	--	0.0
117WBirch	117WBirch-Floor Drain	10/28/15	2.7	0.0	--	--	0.0
117WBirch	117WBirch-SS1	10/28/15	13.5	0.0	20.9	0.00	0.0
117WBirch	117WBirch-SS2	10/28/15	2.6	0.0	20.9	0.00	0.0
117WBirch	117WBirch-SS3	10/28/15	0.0	0.0	18.2	0.00	0.0
117WBirch	117WBirch-Back/N porch	11/04/15	2.2	0.0	--	--	0.0
117WBirch	117WBirch-Basement	11/04/15	4.7	0.0	--	--	0.0

APPENDIX F. WEEKLY IN-HOME EFFECTIVENESS MONITORING DETECTIONS SUMMARY
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location Group	Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
117WBirch	117WBirch-Floor Drain	11/04/15	4.9	0.0	--	--	0.0
117WBirch	117WBirch-SS1	11/04/15	0.0	0.0	20.9	0.00	0.0
117WBirch	117WBirch-SS2	11/04/15	0.0	0.0	20.9	0.00	0.0
117WBirch	117WBirch-SS3	11/04/15	0.0	0.0	18.6	0.00	0.0
117WBirch	117WBirch-Back/N porch	11/11/15	0.0	0.0	--	--	0.0
117WBirch	117WBirch-Basement	11/11/15	3.4	0.0	--	--	0.0
117WBirch	117WBirch-Floor Drain	11/11/15	4.3	0.0	--	--	0.0
117WBirch	117WBirch-SS1	11/11/15	0.0	0.0	17.9	0.00	0.0
117WBirch	117WBirch-SS2	11/11/15	0.0	0.0	20.5	0.00	0.0
117WBirch	117WBirch-SS3	11/11/15	1.5	0.0	20.9	0.00	0.0
117WBirch	117WBirch-Back/N porch	11/18/15	1.7	0.0	--	--	0.0
117WBirch	117WBirch-Basement	11/18/15	3.2	0.0	--	--	0.0
117WBirch	117WBirch-Floor Drain	11/18/15	3.5	0.0	--	--	0.0
117WBirch	117WBirch-SS1	11/18/15	0.0	0.0	19.9	0.00	0.0
117WBirch	117WBirch-SS2	11/18/15	0.0	0.0	20.4	0.00	0.0
117WBirch	117WBirch-SS3	11/18/15	0.0	0.0	20.2	0.00	0.0
117WBirch	117WBirch-Back/N porch	11/25/15	1.8	0.0	--	--	0.0
117WBirch	117WBirch-Basement	11/25/15	3.0	0.0	--	--	0.0
117WBirch	117WBirch-Floor Drain	11/25/15	3.0	0.0	--	--	0.0
117WBirch	117WBirch-SS1	11/25/15	0.0	0.0	20.9	0.00	0.0
117WBirch	117WBirch-SS2	11/25/15	0.0	0.0	20.9	0.00	0.0
117WBirch	117WBirch-SS3	11/25/15	0.0	0.0	18.3	0.00	0.0
117WBirch	117WBirch-Back/N porch	12/02/15	0.0	0.0	--	--	0.0
117WBirch	117WBirch-Basement	12/02/15	2.6	0.0	--	--	0.0
117WBirch	117WBirch-Floor Drain	12/02/15	2.4	0.0	--	--	0.0
117WBirch	117WBirch-SS1	12/02/15	0.0	0.0	20.9	0.00	0.0
117WBirch	117WBirch-SS2	12/02/15	0.0	0.0	20.2	0.00	0.0
117WBirch	117WBirch-SS3	12/02/15	0.0	0.0	20.4	0.00	0.0
117WBirch	117WBirch-Back/N porch	12/07/15	0.0	0.0	--	--	0.0
117WBirch	117WBirch-Basement	12/07/15	2.4	0.0	--	--	0.0
117WBirch	117WBirch-Floor Drain	12/07/15	2.1	0.0	--	--	0.0
117WBirch	117WBirch-SS1	12/07/15	0.0	0.0	20.9	0.00	0.0
117WBirch	117WBirch-SS2	12/07/15	0.0	0.0	20.5	0.00	0.0
117WBirch	117WBirch-SS3	12/07/15	0.0	0.0	20.3	0.00	0.0

APPENDIX F. WEEKLY IN-HOME EFFECTIVENESS MONITORING DETECTIONS SUMMARY
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location Group	Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
117WBirch	117WBirch-Back/N porch	12/16/15	3.4	0.0	--	--	0.0
117WBirch	117WBirch-Basement	12/16/15	5.9	0.0	--	--	0.0
117WBirch	117WBirch-Floor Drain	12/16/15	5.4	0.0	--	--	0.0
117WBirch	117WBirch-SS1	12/16/15	--	--	--	--	--
117WBirch	117WBirch-SS2	12/16/15	0.0	0.0	20.9	0.00	0.0
117WBirch	117WBirch-SS3	12/16/15	0.0	0.0	17.8	0.00	0.0
117WBirch	117WBirch-Back/N porch	01/06/16	2.7	0.0	--	--	0.0
117WBirch	117WBirch-Basement	01/06/16	3.3	0.0	--	--	0.0
117WBirch	117WBirch-Floor Drain	01/06/16	2.3	0.0	--	--	0.0
117WBirch	117WBirch-SS1	01/06/16	26.0	0.0	20.9	0.00	0.0
117WBirch	117WBirch-SS2	01/06/16	0.0	0.0	20.0	0.00	0.0
117WBirch	117WBirch-SS3	01/06/16	0.0	0.0	17.3	0.00	0.0
117WBirch	117WBirch-Back/N porch	01/13/16	1.7	0.0	--	--	0.0
117WBirch	117WBirch-Basement	01/13/16	2.7	0.0	--	--	0.0
117WBirch	117WBirch-Floor Drain	01/13/16	2.6	0.0	--	--	0.0
117WBirch	117WBirch-SS1	01/13/16	--	--	--	--	--
117WBirch	117WBirch-SS2	01/13/16	0.0	0.0	20.4	0.00	0.0
117WBirch	117WBirch-SS3	01/13/16	0.0	0.0	17.8	0.00	0.0
117WBirch	117WBirch-Back/N porch	03/02/16	0.0	0.0	--	--	0.0
117WBirch	117WBirch-Basement	03/02/16	1.3	0.0	--	--	0.0
117WBirch	117WBirch-Floor Drain	03/02/16	1.3	0.0	--	--	0.0
117WBirch	117WBirch-SS1	03/02/16	0.0	0.0	20.9	0.00	0.0
117WBirch	117WBirch-SS2	03/02/16	0.0	0.0	20.9	0.00	0.0
117WBirch	117WBirch-SS3	03/02/16	0.0	0.0	18.7	0.00	0.0
117WBirch	117WBirch-Back/N porch	03/23/16	0.0	0.0	--	--	0.0
117WBirch	117WBirch-Basement	03/23/16	2.1	0.0	--	--	0.0
117WBirch	117WBirch-Floor Drain	03/23/16	2.1	0.0	--	--	0.0
117WBirch	117WBirch-SS1	03/23/16	0.0	0.0	20.9	0.00	0.0
117WBirch	117WBirch-SS2	03/23/16	0.0	0.0	20.0	0.00	0.0
117WBirch	117WBirch-SS3	03/23/16	0.0	0.0	19.2	0.00	0.0
117WBirch	117WBirch-Back/N porch	03/30/16	0.0	0.0	--	--	0.0
117WBirch	117WBirch-Basement	03/30/16	2.3	0.0	--	--	0.0
117WBirch	117WBirch-Floor Drain	03/30/16	2.3	0.0	--	--	0.0
117WBirch	117WBirch-SS1	03/30/16	0.0	0.0	20.9	0.00	0.0

Location Group	Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
117WBirch	117WBirch-SS2	03/30/16	0.0	0.0	20.9	0.00	0.0
117WBirch	117WBirch-SS3	03/30/16	0.0	0.0	18.9	0.00	0.0
129WBirch	129WBirch-Basement	11/11/15	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-central room	11/11/15	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-CW central room	11/11/15	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-furnace room	11/11/15	2.3	0.0	--	--	0.0
129WBirch	129WBirch-Basement-game room	11/11/15	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-laundry room	11/11/15	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NE bedroom	11/11/15	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NE Room by Stairs	11/11/15	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NW bathroom	11/11/15	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NW bedroom	11/11/15	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NW room	11/11/15	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-S Game Room	11/11/15	1.2	0.0	--	--	0.0
129WBirch	129WBirch-Basement-Shower Drain	11/11/15	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Kitchen	11/11/15	0.0	0.0	--	--	0.0
129WBirch	129WBirch-NE Family Room	11/11/15	0.0	0.0	--	--	0.0
129WBirch	129WBirch-SS1	11/11/15	0.0	0.0	14.0	0.00	0.0
129WBirch	129WBirch-SS2	11/11/15	0.0	0.0	19.9	0.00	0.0
129WBirch	129WBirch-SS3	11/11/15	0.0	0.0	18.7	0.00	0.0
129WBirch	129WBirch-Basement	12/16/15	1.3	0.0	--	--	0.0
129WBirch	129WBirch-Basement-central room	12/16/15	2.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-CW central room	12/16/15	2.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-furnace room	12/16/15	3.4	0.0	--	--	0.0
129WBirch	129WBirch-Basement-laundry room	12/16/15	2.1	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NE bedroom	12/16/15	2.8	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NE Room by Stairs	12/16/15	1.3	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NW bathroom	12/16/15	2.1	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NW bedroom	12/16/15	2.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NW room	12/16/15	2.2	0.0	--	--	0.0
129WBirch	129WBirch-Basement-S Game Room	12/16/15	3.1	0.0	--	--	0.0
129WBirch	129WBirch-Basement-Shower Drain	12/16/15	2.0	0.0	--	--	0.0
129WBirch	129WBirch-NE Family Room	12/16/15	0.0	0.0	--	--	0.0
129WBirch	129WBirch-SS1	12/16/15	0.0	0.0	19.9	0.00	0.0

APPENDIX F. WEEKLY IN-HOME EFFECTIVENESS MONITORING DETECTIONS SUMMARY
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location Group	Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
129WBirch	129WBirch-SS2	12/16/15	0.0	0.0	20.9	0.00	0.0
129WBirch	129WBirch-SS3	12/16/15	0.0	0.0	19.1	0.00	0.0
129WBirch	129WBirch-Basement-CW central room	01/06/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-furnace room	01/06/16	1.3	0.0	--	--	0.0
129WBirch	129WBirch-Basement-laundry room	01/06/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NW bathroom	01/06/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NW bedroom	01/06/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-S Game Room	01/06/16	1.3	0.0	--	--	0.0
129WBirch	129WBirch-Basement-Shower Drain	01/06/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-NE Family Room	01/06/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-SS1	01/06/16	0.0	0.0	19.7	0.00	0.0
129WBirch	129WBirch-SS2	01/06/16	0.0	0.0	20.9	0.00	0.0
129WBirch	129WBirch-SS3	01/06/16	0.0	0.0	17.2	0.00	0.0
129WBirch	129WBirch-Basement-CW central room	02/03/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-furnace room	02/03/16	1.8	0.0	--	--	0.0
129WBirch	129WBirch-Basement-game room	02/03/16	1.9	0.0	--	--	0.0
129WBirch	129WBirch-Basement-laundry room	02/03/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NW bathroom	02/03/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NW bedroom	02/03/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NW room	02/03/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-Shower Drain	02/03/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-NE Bathroom	02/03/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-NE Family Room	02/03/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-SS1	02/03/16	0.0	0.0	20.9	0.00	0.0
129WBirch	129WBirch-SS2	02/03/16	0.0	0.0	19.2	0.00	0.0
129WBirch	129WBirch-SS3	02/03/16	0.0	0.0	20.9	0.00	0.0
129WBirch	129WBirch-Basement	02/17/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-central room	02/17/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-CW central room	02/17/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-furnace room	02/17/16	1.7	0.0	--	--	0.0
129WBirch	129WBirch-Basement-laundry room	02/17/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NE bedroom	02/17/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NE Room by Stairs	02/17/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NW bathroom	02/17/16	0.0	0.0	--	--	0.0

APPENDIX F. WEEKLY IN-HOME EFFECTIVENESS MONITORING DETECTIONS SUMMARY
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location Group	Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
129WBirch	129WBirch-Basement-NW bedroom	02/17/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NW room	02/17/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-S Game Room	02/17/16	1.7	0.0	--	--	0.0
129WBirch	129WBirch-Basement-Shower Drain	02/17/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-NE Bathroom	02/17/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-NE Family Room	02/17/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-SS1	02/17/16	0.0	0.0	20.9	0.00	0.0
129WBirch	129WBirch-SS2	02/17/16	0.0	0.0	20.9	0.00	0.0
129WBirch	129WBirch-SS3	02/17/16	0.0	0.0	20.9	0.00	0.0
129WBirch	129WBirch-Basement	03/09/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-central room	03/09/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-CW central room	03/09/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-furnace room	03/09/16	2.1	0.0	--	--	0.0
129WBirch	129WBirch-Basement-laundry room	03/09/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NE bedroom	03/09/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NE Room by Stairs	03/09/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NW bathroom	03/09/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NW bedroom	03/09/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NW room	03/09/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-S Game Room	03/09/16	2.1	0.0	--	--	0.0
129WBirch	129WBirch-Basement-Shower Drain	03/09/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-NE Family Room	03/09/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-NW bathroom	03/09/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-SS1	03/09/16	0.0	0.0	20.9	0.00	0.0
129WBirch	129WBirch-SS2	03/09/16	0.0	0.0	20.9	0.00	0.0
129WBirch	129WBirch-SS3	03/09/16	0.0	0.0	19.8	0.00	0.0
129WBirch	129WBirch-Basement	03/23/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-central room	03/23/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-CW central room	03/23/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-furnace room	03/23/16	2.2	0.0	--	--	0.0
129WBirch	129WBirch-Basement-game room	03/23/16	2.1	0.0	--	--	0.0
129WBirch	129WBirch-Basement-laundry room	03/23/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NE bedroom	03/23/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NE Room by Stairs	03/23/16	0.0	0.0	--	--	0.0

APPENDIX F. WEEKLY IN-HOME EFFECTIVENESS MONITORING DETECTIONS SUMMARY
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location Group	Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
129WBirch	129WBirch-Basement-NW bathroom	03/23/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NW bedroom	03/23/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NW room	03/23/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-Shower Drain	03/23/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-NE Bathroom	03/23/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-NE Family Room	03/23/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-SS1	03/23/16	0.0	0.0	20.9	0.00	0.0
129WBirch	129WBirch-SS2	03/23/16	0.0	0.0	20.9	0.00	0.0
129WBirch	129WBirch-SS3	03/23/16	0.0	0.0	20.9	0.00	0.0
129WBirch	129WBirch-Basement	03/30/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-central roo	03/30/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-CW central	03/30/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-furnace roo	03/30/16	2.8	0.0	--	--	0.0
129WBirch	129WBirch-Basement-laundry roo	03/30/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NE bedroom	03/30/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NE Room by	03/30/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NW bathroom	03/30/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NW bedroom	03/30/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-NW room	03/30/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-Basement-S Game Room	03/30/16	2.6	0.0	--	--	0.0
129WBirch	129WBirch-Basement-Shower Drai	03/30/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-NE Family Room	03/30/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-NW bathroom	03/30/16	0.0	0.0	--	--	0.0
129WBirch	129WBirch-SS1	03/30/16	0.0	0.0	20.9	0.00	0.0
129WBirch	129WBirch-SS2	03/30/16	0.0	0.0	20.9	0.00	0.0
129WBirch	129WBirch-SS3	03/30/16	0.0	0.0	19.5	0.00	0.0
507NOlive	507NOlive-Basement	10/07/15	--	0.0	--	--	--
507NOlive	507NOlive-Floor drain in Basement	10/07/15	--	0.0	--	--	--
507NOlive	507NOlive-Front porch	10/07/15	--	0.0	--	--	--
507NOlive	507NOlive-Kitchen	10/07/15	--	0.0	--	--	--
507NOlive	507NOlive-Living room	10/07/15	--	0.0	--	--	--
507NOlive	507NOlive-SS1	10/07/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS2	10/07/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS3	10/07/15	56.0	0.0	20.9	-0.08	0.0

APPENDIX F. WEEKLY IN-HOME EFFECTIVENESS MONITORING DETECTIONS SUMMARY
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location Group	Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
507NOlive	507NOlive-SS4	10/07/15	71.0	0.0	20.9	-0.10	0.0
507NOlive	507NOlive-SS5	10/07/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS6	10/07/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS7	10/07/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-Basement	10/14/15	0.0	0.0	--	--	--
507NOlive	507NOlive-Dininng Room	10/14/15	0.0	0.0	--	--	--
507NOlive	507NOlive-Floor drain in Basement	10/14/15	0.0	0.0	--	--	--
507NOlive	507NOlive-Front porch	10/14/15	0.0	0.0	--	--	--
507NOlive	507NOlive-Kitchen	10/14/15	0.0	0.0	--	--	--
507NOlive	507NOlive-Living room	10/14/15	0.0	0.0	--	--	--
507NOlive	507NOlive-SS1	10/14/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS2	10/14/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS3	10/14/15	58.0	0.0	20.9	-0.07	0.0
507NOlive	507NOlive-SS4	10/14/15	70.0	0.0	20.9	-0.10	0.0
507NOlive	507NOlive-SS5	10/14/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS6	10/14/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS7	10/14/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-Basement	10/21/15	0.0	0.0	--	--	--
507NOlive	507NOlive-Bathroom in Basement	10/21/15	0.0	0.0	--	--	--
507NOlive	507NOlive-Floor drain in Basement	10/21/15	0.0	0.0	--	--	--
507NOlive	507NOlive-Front porch	10/21/15	0.0	0.0	--	--	--
507NOlive	507NOlive-Kitchen	10/21/15	0.0	0.0	--	--	--
507NOlive	507NOlive-Living room	10/21/15	0.0	0.0	--	--	--
507NOlive	507NOlive-NE bedroom	10/21/15	0.0	0.0	--	--	--
507NOlive	507NOlive-SS1	10/21/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS2	10/21/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS3	10/21/15	47.0	0.0	20.9	-0.07	0.0
507NOlive	507NOlive-SS4	10/21/15	58.0	0.0	20.9	-0.09	0.0
507NOlive	507NOlive-SS5	10/21/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS6	10/21/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS7	10/21/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-Basement	10/28/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Bathroom in Basement	10/28/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Computer room	10/28/15	0.0	0.0	--	--	0.0

APPENDIX F. WEEKLY IN-HOME EFFECTIVENESS MONITORING DETECTIONS SUMMARY
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location Group	Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
507NOlive	507NOlive-Floor drain in Basement	10/28/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Front porch	10/28/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Kitchen	10/28/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-SS1	10/28/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS2	10/28/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS3	10/28/15	34.0	0.0	20.9	-0.08	0.0
507NOlive	507NOlive-SS4	10/28/15	29.0	0.0	20.9	-0.11	0.0
507NOlive	507NOlive-SS5	10/28/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS6	10/28/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS7	10/28/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-Basement	11/04/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Bathroom in Basement	11/04/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Computer room	11/04/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Dininng Room	11/04/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-E Porch	11/04/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Floor drain in Basement	11/04/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Living room	11/04/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-SS1	11/04/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS2	11/04/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS3	11/04/15	27.0	0.0	20.9	-0.08	0.0
507NOlive	507NOlive-SS4	11/04/15	14.0	0.0	20.9	-0.11	0.0
507NOlive	507NOlive-SS5	11/04/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS6	11/04/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS7	11/04/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-Basement	11/11/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Floor drain in Basement	11/11/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Front porch	11/11/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Kitchen	11/11/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Living room	11/11/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-SS1	11/11/15	0.0	0.0	20.9	-0.05	0.0
507NOlive	507NOlive-SS2	11/11/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS3	11/11/15	62.3	0.0	20.9	-0.08	0.0
507NOlive	507NOlive-SS4	11/11/15	57.4	0.0	20.9	-0.08	0.0
507NOlive	507NOlive-SS5	11/11/15	0.0	0.0	20.9	0.00	0.0

APPENDIX F. WEEKLY IN-HOME EFFECTIVENESS MONITORING DETECTIONS SUMMARY
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location Group	Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
507NOlive	507NOlive-SS6	11/11/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS7	11/11/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-Basement	11/18/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Dininng Room	11/18/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Floor drain in Basement	11/18/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Front porch	11/18/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Kitchen	11/18/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Living room	11/18/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-SS1	11/18/15	0.0	0.0	20.9	-0.07	0.0
507NOlive	507NOlive-SS2	11/18/15	0.0	0.0	20.9	-0.07	0.0
507NOlive	507NOlive-SS3	11/18/15	65.0	0.0	20.9	-0.11	0.0
507NOlive	507NOlive-SS4	11/18/15	85.0	0.0	20.9	-0.14	0.0
507NOlive	507NOlive-SS5	11/18/15	0.0	0.0	20.9	-0.06	0.0
507NOlive	507NOlive-SS6	11/18/15	0.0	0.0	20.9	-0.05	0.0
507NOlive	507NOlive-SS7	11/18/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-Basement	11/25/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Computer room	11/25/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Floor drain in Basement	11/25/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Front porch	11/25/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Kitchen	11/25/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Living room	11/25/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-SS1	11/25/15	0.0	0.0	20.9	-0.08	0.0
507NOlive	507NOlive-SS2	11/25/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS3	11/25/15	27.0	0.0	20.9	-0.06	0.0
507NOlive	507NOlive-SS4	11/25/15	66.0	0.0	20.9	-0.08	0.0
507NOlive	507NOlive-SS5	11/25/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS6	11/25/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS7	11/25/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-Basement	12/02/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Dininng Room	12/02/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Floor drain in Basement	12/02/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Front porch	12/02/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Kitchen	12/02/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Living room	12/02/15	0.0	0.0	--	--	0.0

APPENDIX F. WEEKLY IN-HOME EFFECTIVENESS MONITORING DETECTIONS SUMMARY
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location Group	Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
507NOlive	507NOlive-SS1	12/02/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS2	12/02/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS3	12/02/15	90.0	0.0	20.9	-0.09	0.0
507NOlive	507NOlive-SS4	12/02/15	110	0.0	20.9	-0.10	0.0
507NOlive	507NOlive-SS5	12/02/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS6	12/02/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS7	12/02/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-Basement	12/07/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Dininng Room	12/07/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Floor drain in Basement	12/07/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Front porch	12/07/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Kitchen	12/07/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Living room	12/07/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-SS1	12/07/15	0.0	0.0	20.9	-0.10	0.0
507NOlive	507NOlive-SS2	12/07/15	0.0	0.0	20.9	-0.07	0.0
507NOlive	507NOlive-SS3	12/07/15	46.0	0.0	20.9	-0.09	0.0
507NOlive	507NOlive-SS4	12/07/15	91.0	0.0	20.9	-0.11	0.0
507NOlive	507NOlive-SS5	12/07/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS6	12/07/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS7	12/07/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-Basement	12/16/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Bathroom in Basement	12/16/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Computer room	12/16/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Floor drain in Basement	12/16/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Front porch	12/16/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Kitchen	12/16/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Living room	12/16/15	0.0	0.0	--	--	0.0
507NOlive	507NOlive-SS1	12/16/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS2	12/16/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS3	12/16/15	28.0	0.0	20.9	-0.06	0.0
507NOlive	507NOlive-SS4	12/16/15	14.0	0.0	20.9	-0.07	0.0
507NOlive	507NOlive-SS5	12/16/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS6	12/16/15	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS7	12/16/15	0.0	0.0	20.9	0.00	0.0

APPENDIX F. WEEKLY IN-HOME EFFECTIVENESS MONITORING DETECTIONS SUMMARY
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location Group	Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
507NOlive	507NOlive-Basement	01/06/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Bathroom in Basement	01/06/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Computer room	01/06/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-E Porch	01/06/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Floor drain in Basement	01/06/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Front porch	01/06/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Kitchen	01/06/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Living room	01/06/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-SS1	01/06/16	--	--	--	--	--
507NOlive	507NOlive-SS2	01/06/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS3	01/06/16	4.2	0.0	20.9	-0.07	0.0
507NOlive	507NOlive-SS4	01/06/16	17.3	0.0	20.9	-0.08	0.0
507NOlive	507NOlive-SS5	01/06/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS6	01/06/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS7	01/06/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-Basement	01/13/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Computer room	01/13/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Floor drain in Basement	01/13/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Front porch	01/13/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Kitchen	01/13/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Living room	01/13/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-SS1	01/13/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS2	01/13/16	0.0	0.0	20.0	-0.06	0.0
507NOlive	507NOlive-SS3	01/13/16	3.3	0.0	20.9	-0.09	0.0
507NOlive	507NOlive-SS4	01/13/16	7.2	0.0	20.9	-0.10	0.0
507NOlive	507NOlive-SS5	01/13/16	0.0	0.0	20.0	0.00	0.0
507NOlive	507NOlive-SS6	01/13/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS7	01/13/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-Basement	01/27/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Dininng Room	01/27/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Floor drain in Basement	01/27/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Front porch	01/27/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Kitchen	01/27/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Living room	01/27/16	0.0	0.0	--	--	0.0

APPENDIX F. WEEKLY IN-HOME EFFECTIVENESS MONITORING DETECTIONS SUMMARY
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location Group	Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
507NOlive	507NOlive-SS1	01/27/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS2	01/27/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS3	01/27/16	9.0	0.0	20.9	-0.05	0.0
507NOlive	507NOlive-SS4	01/27/16	54.0	0.0	20.9	-0.07	0.0
507NOlive	507NOlive-SS5	01/27/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS6	01/27/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS7	01/27/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-Basement	02/03/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Computer room	02/03/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Front porch	02/03/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Living room	02/03/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-SS1	02/03/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS2	02/03/16	0.0	0.0	20.9	-0.05	0.0
507NOlive	507NOlive-SS3	02/03/16	34.0	0.0	20.9	-0.08	0.0
507NOlive	507NOlive-SS4	02/03/16	14.0	0.0	20.9	-0.09	0.0
507NOlive	507NOlive-SS5	02/03/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS6	02/03/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS7	02/03/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-Basement	02/10/16	1.6	0.0	--	--	0.0
507NOlive	507NOlive-Dininng Room	02/10/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Floor drain in Basement	02/10/16	1.6	0.0	--	--	0.0
507NOlive	507NOlive-Front porch	02/10/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Kitchen	02/10/16	3.0	0.0	--	--	0.0
507NOlive	507NOlive-Living room	02/10/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-SS1	02/10/16	3.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS2	02/10/16	21.5	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS3	02/10/16	25.0	0.0	20.9	-0.06	0.0
507NOlive	507NOlive-SS4	02/10/16	200	0.0	20.9	-0.06	1.0
507NOlive	507NOlive-SS5	02/10/16	0.0	0.0	20.9	0.00	32.0
507NOlive	507NOlive-SS6	02/10/16	0.0	0.0	20.9	0.00	5.0
507NOlive	507NOlive-SS7	02/10/16	0.0	0.0	20.9	0.00	3.0
507NOlive	507NOlive-Basement	02/17/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Bathroom in Basement	02/17/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Computer room	02/17/16	0.0	0.0	--	--	0.0

APPENDIX F. WEEKLY IN-HOME EFFECTIVENESS MONITORING DETECTIONS SUMMARY
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location Group	Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
507NOlive	507NOlive-Floor drain in Basement	02/17/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Front porch	02/17/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Kitchen	02/17/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Living room	02/17/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-SS1	02/17/16	0.0	0.0	20.0	0.00	0.0
507NOlive	507NOlive-SS2	02/17/16	10.8	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS3	02/17/16	17.0	0.0	20.9	-0.07	0.0
507NOlive	507NOlive-SS4	02/17/16	95.0	0.0	20.9	-0.08	0.0
507NOlive	507NOlive-SS5	02/17/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS6	02/17/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS7	02/17/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-Basement	02/24/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Bathroom in Basement	02/24/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Computer room	02/24/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Dininng Room	02/24/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Floor drain in Basement	02/24/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Front porch	02/24/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Kitchen	02/24/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Living room	02/24/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-SS1	02/24/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS2	02/24/16	0.0	0.0	20.9	-0.07	0.0
507NOlive	507NOlive-SS3	02/24/16	28.0	0.0	20.9	-0.12	0.0
507NOlive	507NOlive-SS4	02/24/16	70.0	0.0	20.9	-0.14	0.0
507NOlive	507NOlive-SS5	02/24/16	0.0	0.0	20.9	-0.07	0.0
507NOlive	507NOlive-SS6	02/24/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS7	02/24/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-Basement	03/02/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Bathroom in Basement	03/02/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Computer room	03/02/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Floor drain in Basement	03/02/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Front porch	03/02/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Kitchen	03/02/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Living room	03/02/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-SS1	03/02/16	0.0	0.0	20.9	0.00	0.0

APPENDIX F. WEEKLY IN-HOME EFFECTIVENESS MONITORING DETECTIONS SUMMARY
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location Group	Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
507NOlive	507NOlive-SS2	03/02/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS3	03/02/16	19.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS4	03/02/16	41.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS5	03/02/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS6	03/02/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS7	03/02/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-Basement	03/09/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Bathroom in Basement	03/09/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Computer room	03/09/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Floor drain in Basement	03/09/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Front porch	03/09/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Kitchen	03/09/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Living room	03/09/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-SS1	03/09/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS2	03/09/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS3	03/09/16	5.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS4	03/09/16	12.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS5	03/09/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS6	03/09/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS7	03/09/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-Basement	03/16/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Bathroom in Basement	03/16/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Computer room	03/16/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Floor drain in Basement	03/16/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Front porch	03/16/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Kitchen	03/16/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Living room	03/16/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-SS1	03/16/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS2	03/16/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS3	03/16/16	3.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS4	03/16/16	4.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS5	03/16/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS6	03/16/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS7	03/16/16	0.0	0.0	20.9	0.00	0.0

APPENDIX F. WEEKLY IN-HOME EFFECTIVENESS MONITORING DETECTIONS SUMMARY
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location Group	Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
507NOlive	507NOlive-Basement	03/23/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Bathroom in Basement	03/23/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Computer room	03/23/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Dininng Room	03/23/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Floor drain in Basement	03/23/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Front porch	03/23/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Living room	03/23/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-SS1	03/23/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS2	03/23/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS3	03/23/16	3.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS4	03/23/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS5	03/23/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS6	03/23/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS7	03/23/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-Basement	03/30/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Bathroom in Basement	03/30/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Computer room	03/30/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Floor drain in Basem	03/30/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Front porch	03/30/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Kitchen	03/30/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-Living room	03/30/16	0.0	0.0	--	--	0.0
507NOlive	507NOlive-SS1	03/30/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS2	03/30/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS3	03/30/16	14.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS4	03/30/16	2.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS5	03/30/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS6	03/30/16	0.0	0.0	20.9	0.00	0.0
507NOlive	507NOlive-SS7	03/30/16	0.0	0.0	20.9	0.00	0.0
610NOldStLouis	610NOldStLouis-Back entrance	10/28/15	2.1	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-Basement	10/28/15	3.2	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-Sump in basement	10/28/15	3.0	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-SS1	10/28/15	0.0	0.0	12.1	0.00	0.0
610NOldStLouis	610NOldStLouis-SS2	10/28/15	0.0	0.0	10.4	0.00	0.0
610NOldStLouis	610NOldStLouis-SS3	10/28/15	0.0	0.0	11.5	0.00	0.0

APPENDIX F. WEEKLY IN-HOME EFFECTIVENESS MONITORING DETECTIONS SUMMARY
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location Group	Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
610NOldStLouis	610NOldStLouis-Back entrance	11/04/15	1.9	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-Basement	11/04/15	3.7	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-Sump in basement	11/04/15	3.7	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-SS1	11/04/15	0.0	0.0	13.1	0.00	0.0
610NOldStLouis	610NOldStLouis-SS2	11/04/15	0.0	0.0	11.7	0.00	0.0
610NOldStLouis	610NOldStLouis-SS3	11/04/15	0.0	0.0	13.2	0.00	0.0
610NOldStLouis	610NOldStLouis-Back entrance	11/11/15	0.0	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-Basement	11/11/15	2.0	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-Sump in basement	11/11/15	2.5	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-SS1	11/11/15	0.0	0.0	20.9	0.00	0.0
610NOldStLouis	610NOldStLouis-SS2	11/11/15	0.0	0.0	10.8	0.00	0.0
610NOldStLouis	610NOldStLouis-SS3	11/11/15	1.2	0.0	13.1	0.00	0.0
610NOldStLouis	610NOldStLouis-Back entrance	12/02/15	1.3	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-Basement	12/02/15	1.7	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-Sump in basement	12/02/15	1.5	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-SS1	12/02/15	0.0	0.0	13.6	0.00	0.0
610NOldStLouis	610NOldStLouis-SS2	12/02/15	0.0	0.0	11.6	0.00	0.0
610NOldStLouis	610NOldStLouis-SS3	12/02/15	0.0	0.0	17.9	0.00	0.0
610NOldStLouis	610NOldStLouis-Back entrance	12/16/15	2.3	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-Basement	12/16/15	7.0	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-Sump in basement	12/16/15	4.4	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-SS1	12/16/15	4.5	0.0	11.9	0.00	0.0
610NOldStLouis	610NOldStLouis-SS2	12/16/15	0.0	0.0	10.3	0.00	0.0
610NOldStLouis	610NOldStLouis-SS3	12/16/15	0.0	0.0	13.3	0.00	0.0
610NOldStLouis	610NOldStLouis-Back entrance	01/06/16	2.2	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-Basement	01/06/16	4.1	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-Sump in basement	01/06/16	4.1	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-SS1	01/06/16	8.3	0.0	4.8	0.00	0.0
610NOldStLouis	610NOldStLouis-SS2	01/06/16	9.0	0.0	2.5	0.00	0.0
610NOldStLouis	610NOldStLouis-SS3	01/06/16	0.0	0.0	11.8	0.00	0.0
610NOldStLouis	610NOldStLouis-Back entrance	01/13/16	1.8	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-Basement	01/13/16	3.3	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-Sump in basement	01/13/16	3.1	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-SS1	01/13/16	0.0	0.0	10.1	0.00	0.0

APPENDIX F. WEEKLY IN-HOME EFFECTIVENESS MONITORING DETECTIONS SUMMARY
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location Group	Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
610NOldStLouis	610NOldStLouis-SS2	01/13/16	5.6	0.0	7.2	0.00	0.0
610NOldStLouis	610NOldStLouis-SS3	01/13/16	3.8	0.0	14.4	0.00	0.0
610NOldStLouis	610NOldStLouis-Back entrance	01/27/16	1.8	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-Basement	01/27/16	2.9	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-Sump in basement	01/27/16	3.0	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-SS1	01/27/16	0.0	0.0	6.5	0.00	0.0
610NOldStLouis	610NOldStLouis-SS2	01/27/16	0.0	0.0	3.3	0.00	0.0
610NOldStLouis	610NOldStLouis-SS3	01/27/16	0.0	0.0	13.7	0.00	0.0
610NOldStLouis	610NOldStLouis-Back entrance	02/03/16	1.6	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-Basement	02/03/16	2.2	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-Sump in basement	02/03/16	2.1	0.0	--	--	0.0
610NOldStLouis	610NOldStLouis-SS1	02/03/16	0.0	0.0	7.0	0.00	0.0
610NOldStLouis	610NOldStLouis-SS2	02/03/16	0.0	0.0	4.0	0.00	0.0
610NOldStLouis	610NOldStLouis-SS3	02/03/16	0.0	0.0	12.0	0.00	0.0

Notes:
- Sub slab measurements were not collected when water was pulled from probe, intial pressure measurements are indicative of water
- Field equipment includes a dwyer series 475 micromanometer, Thermo Scientific TVA1000 FID (flame ionization detector) equiped with PID (photoionization detector), and a REA Systems multiRAE four gas meter
- Additional action is required when FID concentrations exceed 10 ppmv in the indoor air or 350 ppmv in the sub slab

in-H_2O - inches of water
% - percent
%LEL - percent lower explosive limit
ppmv - parts per million by volume
-- - not analyzed
TVPH - total volatile petroleum hydrocarbons
FID - flame ionization detector

APPENDIX G

APPENDIX G-1. QUARTERLY IN-HOME EFFECTIVENESS MONITORING DETECTIONS SUMMARY
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location	Date Sampled	Direct Read Results					Tedlar Bag Results					
		Pressure (in-H2O)	Oxygen (%)	LEL (%)	Total Organic Vapor PID (ppmv)	FID TVPH Concentration (ppmv)	Oxygen (%)	Carbon Dioxide (%)	LEL (%)	Total Organic Vapor PID (ppmv)	FID TVPH Concentration (ppmv)	Methane (ppmv)
107WBirch-Basement	02/10/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
107WBirch-Crawl Space under fa	02/10/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
107WBirch-Floor drain Basement	02/10/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
107WBirch-Living Room	02/10/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
107WBirch-Shower floor drain B	02/10/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
107WBirch-SS1	02/10/16	0.00	19.8	0.0	0.0	0.0	--	--	--	--	--	--
107WBirch-SS2	02/10/16	0.00	19.9	0.0	0.0	0.0	--	--	--	--	--	--
107WBirch-SS3	02/10/16	0.00	20.9	0.0	0.0	1.0	--	--	--	--	--	--
116EWatkins-Back Porch	11/10/15	--	--	0.0	--	0.0	--	--	--	--	--	--
116EWatkins-Basement	11/10/15	--	--	0.0	--	1.0	--	--	--	--	--	--
116EWatkins-Basement-Bathroom	11/10/15	--	--	0.0	--	1.0	--	--	--	--	--	--
116EWatkins-Basement-Crawl spa	11/10/15	--	--	0.0	--	0.0	--	--	--	--	--	--
116EWatkins-Basement-Floor dra	11/10/15	--	--	0.0	--	0.0	--	--	--	--	--	--
116EWatkins-Basement-Floor dra	11/10/15	--	--	0.0	--	0.0	--	--	--	--	--	--
116EWatkins-Basement-Office	11/10/15	--	--	0.0	--	0.0	--	--	--	--	--	--
116EWatkins-Bathroom	11/10/15	--	--	0.0	--	0.0	--	--	--	--	--	--
116EWatkins-Dining room	11/10/15	--	--	0.0	--	0.0	--	--	--	--	--	--
116EWatkins-Front porch	11/10/15	--	--	0.0	--	0.0	--	--	--	--	--	--
116EWatkins-Laundry Room	11/10/15	--	--	0.0	--	0.0	--	--	--	--	--	--
116EWatkins-Living room	11/10/15	--	--	0.0	--	0.0	--	--	--	--	--	--
116EWatkins-SS1	11/10/15	0.00	20.9	0.0	--	0.0	--	--	--	--	--	--
116EWatkins-SS2	11/10/15	0.00	20.9	0.0	--	0.0	--	--	--	--	--	--
116EWatkins-SS3	11/10/15	0.00	20.9	0.0	--	0.0	--	--	--	--	--	--
117WBirch-Back/N porch	11/11/15	--	--	0.0	--	0.0	--	--	--	--	--	--
117WBirch-Basement	11/11/15	--	--	0.0	--	3.4	--	--	--	--	--	--
117WBirch-Floor Drain	11/11/15	--	--	0.0	--	4.3	--	--	--	--	--	--
117WBirch-SS1	11/11/15	0.00	17.9	0.0	--	0.0	--	--	--	--	--	--
117WBirch-SS2	11/11/15	0.00	20.5	0.0	--	0.0	--	--	--	--	--	--
117WBirch-SS3	11/11/15	0.00	20.9	0.0	--	1.5	--	--	--	--	--	--
118EElm-Basement-Store room ne	11/16/15	--	--	0.0	--	1.2	--	--	--	--	--	--
118EElm-E Basement	11/16/15	--	--	0.0	--	1.2	--	--	--	--	--	--
118EElm-Front Porch	11/16/15	--	--	0.0	--	1.3	--	--	--	--	--	--
118EElm-Kitchen	11/16/15	--	--	0.0	--	1.6	--	--	--	--	--	--
118EElm-Laundry Room floor dra	11/16/15	--	--	0.0	--	1.2	--	--	--	--	--	--
118EElm-Living Room	11/16/15	--	--	0.0	--	1.6	--	--	--	--	--	--
118EElm-NE drain in basement	11/16/15	--	--	0.0	--	1.2	--	--	--	--	--	--
118EElm-SE room in basement	11/16/15	--	--	0.0	--	1.0	--	--	--	--	--	--
118EElm-W basement/bedroom	11/16/15	--	--	0.0	--	1.0	--	--	--	--	--	--
118EElm-SS1	11/16/15	0.00	17.3	0.0	--	0.0	--	--	--	--	--	--
118EElm-SS2	11/16/15	0.00	6.0	0.0	--	0.0	--	--	--	--	--	--
118EElm-SS3	11/16/15	0.00	17.9	0.0	--	0.0	--	--	--	--	--	--
119WBirch-Back/N entrance	02/11/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
119WBirch-Basement Central Roo	02/11/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
119WBirch-Basement N Room	02/11/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
119WBirch-Basement shower drai	02/11/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
119WBirch-Basement WC Room	02/11/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
119WBirch-Rear porch	02/11/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--

APPENDIX G-1. QUARTERLY IN-HOME EFFECTIVENESS MONITORING DETECTIONS SUMMARY
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

		Direct Read Results					Tedlar Bag Results					
Location	Date Sampled	Pressure (in-H2O)	Oxygen (%)	LEL (%)	Total Organic Vapor PID (ppmv)	FID TVPH Concentration (ppmv)	Oxygen (%)	Carbon Dioxide (%)	LEL (%)	Total Organic Vapor PID (ppmv)	FID TVPH Concentration (ppmv)	Methane (ppmv)
119WBirch-S room in Basement	02/11/16	--	--	0.0	0.0	1.0	--	--	--	--	--	--
119WBirch-SS1	02/11/16	0.00	20.9	0.0	0.0	0.0	--	--	--	--	--	--
119WBirch-SS2	02/11/16	0.00	20.9	0.0	0.0	0.0	--	--	--	--	--	--
119WBirch-SS3	02/11/16	0.00	20.4	0.0	0.0	0.0	--	--	--	--	--	--
119WBirch-Back/N entrance	11/12/15	--	--	0.0	--	0.0	--	--	--	--	--	--
119WBirch-Basement Central Roo	11/12/15	--	--	0.0	--	2.4	--	--	--	--	--	--
119WBirch-Basement N Room	11/12/15	--	--	0.0	--	1.5	--	--	--	--	--	--
119WBirch-Basement shower drai	11/12/15	--	--	0.0	--	2.8	--	--	--	--	--	--
119WBirch-Basement WC Room	11/12/15	--	--	0.0	--	2.2	--	--	--	--	--	--
119WBirch-Rear porch	11/12/15	--	--	0.0	--	0.0	--	--	--	--	--	--
119WBirch-S room in Basement	11/12/15	--	--	0.0	--	3.1	--	--	--	--	--	--
119WBirch-SS1	11/12/15	0.00	19.8	0.0	--	0.0	--	--	--	--	--	--
119WBirch-SS2	11/12/15	0.00	20.9	0.0	--	5.0	--	--	--	--	--	--
119WBirch-SS3	11/12/15	0.00	20.1	0.0	--	0.0	--	--	--	--	--	--
125EForest-Back/N porch	11/13/15	--	--	0.0	--	3.0	--	--	--	--	--	--
125EForest-Basement	11/13/15	--	--	0.0	--	2.8	--	--	--	--	--	--
125EForest-Basement NW room	11/13/15	--	--	0.0	--	3.0	--	--	--	--	--	--
125EForest-Drain in Basement p	11/13/15	--	--	0.0	--	3.1	--	--	--	--	--	--
125EForest-SS1	11/13/15	0.00	20.9	0.0	--	0.0	--	--	--	--	--	--
125EForest-SS3	11/13/15	0.00	19.2	0.0	--	0.0	--	--	--	--	--	--
126EElm-Basement	02/10/16	--	--	0.0	0.0	1.5	--	--	--	--	--	--
126EElm-Basement floor drain	02/10/16	--	--	0.0	0.0	1.5	--	--	--	--	--	--
126EElm-SS1	02/10/16	0.00	17.9	0.0	0.0	0.0	--	--	--	--	--	--
126EElm-SS2	02/10/16	0.00	17.7	0.0	0.0	0.0	--	--	--	--	--	--
126EElm-SS3	02/10/16	0.00	18.0	0.0	0.0	0.0	--	--	--	--	--	--
127EElm-Basement	11/10/15	--	--	0.0	--	1.1	--	--	--	--	--	--
127EElm-Basement Washer drain	11/10/15	--	--	0.0	--	1.2	--	--	--	--	--	--
127EElm-SS1	11/10/15	0.00	20.9	0.0	--	0.0	--	--	--	--	--	--
127EElm-SS2	11/10/15	0.00	20.9	0.0	--	0.0	--	--	--	--	--	--
127EElm-SS3	11/10/15	0.00	20.5	0.0	--	0.0	--	--	--	--	--	--
128WCherry-Back/S porch	11/10/15	--	--	0.0	--	1.2	--	--	--	--	--	--
128WCherry-Basement	11/10/15	--	--	0.0	--	1.8	--	--	--	--	--	--
128WCherry-Basement floor drai	11/10/15	--	--	0.0	--	1.2	--	--	--	--	--	--
128WCherry-Kitchen	11/10/15	--	--	0.0	--	1.3	--	--	--	--	--	--
128WCherry-SS1	11/10/15	0.00	19.8	0.0	--	0.0	--	--	--	--	--	--
128WCherry-SS2	11/10/15	0.00	18.8	0.0	--	0.0	--	--	--	--	--	--
128WCherry-SS3	11/10/15	0.00	19.7	0.0	--	0.0	--	--	--	--	--	--
129WBirch-Basement	11/11/15	--	--	0.0	--	0.0	--	--	--	--	--	--
129WBirch-Basement-central roo	11/11/15	--	--	0.0	--	0.0	--	--	--	--	--	--
129WBirch-Basement-CW central	11/11/15	--	--	0.0	--	0.0	--	--	--	--	--	--
129WBirch-Basement-furnace roo	11/11/15	--	--	0.0	--	2.3	--	--	--	--	--	--
129WBirch-Basement-game room	11/11/15	--	--	0.0	--	0.0	--	--	--	--	--	--
129WBirch-Basement-laundry roo	11/11/15	--	--	0.0	--	0.0	--	--	--	--	--	--
129WBirch-Basement-NE bedroom	11/11/15	--	--	0.0	--	0.0	--	--	--	--	--	--
129WBirch-Basement-NE Room by	11/11/15	--	--	0.0	--	0.0	--	--	--	--	--	--
129WBirch-Basement-NW bathroom	11/11/15	--	--	0.0	--	0.0	--	--	--	--	--	--

APPENDIX G-1. QUARTERLY IN-HOME EFFECTIVENESS MONITORING DETECTIONS SUMMARY
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

		Direct Read Results					Tedlar Bag Results					
Location	Date Sampled	Pressure (in-H2O)	Oxygen (%)	LEL (%)	Total Organic Vapor PID (ppmv)	FID TVPH Concentration (ppmv)	Oxygen (%)	Carbon Dioxide (%)	LEL (%)	Total Organic Vapor PID (ppmv)	FID TVPH Concentration (ppmv)	Methane (ppmv)
129WBirch-Basement-NW bedroom	11/11/15	--	--	0.0	--	0.0	--	--	--	--	--	--
129WBirch-Basement-NW room	11/11/15	--	--	0.0	--	0.0	--	--	--	--	--	--
129WBirch-Basement-S Game Room	11/11/15	--	--	0.0	--	1.2	--	--	--	--	--	--
129WBirch-Basement-Shower Drai	11/11/15	--	--	0.0	--	0.0	--	--	--	--	--	--
129WBirch-Kitchen	11/11/15	--	--	0.0	--	0.0	--	--	--	--	--	--
129WBirch-NE Family Room	11/11/15	--	--	0.0	--	0.0	--	--	--	--	--	--
129WBirch-SS1	11/11/15	0.00	14.0	0.0	--	0.0	--	--	--	--	--	--
129WBirch-SS2	11/11/15	0.00	19.9	0.0	--	0.0	--	--	--	--	--	--
129WBirch-SS3	11/11/15	0.00	18.7	0.0	--	0.0	--	--	--	--	--	--
309NOlive-Back entrance	02/08/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
309NOlive-Back/W room	02/08/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
309NOlive-Basement	02/08/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
309NOlive-Bathroom	02/08/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
309NOlive-Dining room/Kitchen	02/08/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
309NOlive-Drain	02/08/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
309NOlive-Drain in Basement	02/08/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
309NOlive-Front/E porch	02/08/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
309NOlive-Kitchen	02/08/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
309NOlive-N central room	02/08/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
309NOlive-NE room	02/08/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
309NOlive-S central room	02/08/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
309NOlive-SE room	02/08/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
309NOlive-Sump in basement	02/08/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
309NOlive-SS1	02/08/16	0.00	20.9	0.0	0.0	0.0	--	--	--	--	--	--
309NOlive-SS2	02/08/16	0.00	12.8	5.0	9.2	3,280	--	--	--	--	--	--
309NOlive-SS2	02/08/16	--	--	--	--	--	11.6	2.9	5.0	9.2	3,280	2,450
309NOlive-SS2	02/08/16	--	--	--	--	--	19.9	1.2	0.0	0.6	53	53
309NOlive-SS3	02/08/16	0.00	20.1	0.0	1.0	1.8	--	--	--	--	--	--
309NOlive-SS2	02/09/16	--	--	--	--	--	20.5	1.0	0.0	0.0	65.0	65.0
309NOlive-SS2	02/11/16	--	--	--	--	--	20.8	0.0	0.0	1.7	0.0	0.0
507NOlive-Basement	11/11/15	--	--	0.0	--	0.0	--	--	--	--	--	--
507NOlive-Floor drain in Basem	11/11/15	--	--	0.0	--	0.0	--	--	--	--	--	--
507NOlive-Front porch	11/11/15	--	--	0.0	--	0.0	--	--	--	--	--	--
507NOlive-Kitchen	11/11/15	--	--	0.0	--	0.0	--	--	--	--	--	--
507NOlive-Living room	11/11/15	--	--	0.0	--	0.0	--	--	--	--	--	--
507NOlive-SS1	11/11/15	-0.05	20.9	0.0	--	0.0	--	--	--	--	--	--
507NOlive-SS2	11/11/15	0.00	20.9	0.0	--	0.0	--	--	--	--	--	--
507NOlive-SS3	11/11/15	-0.08	20.9	0.0	--	62.3	--	--	--	--	--	--
507NOlive-SS4	11/11/15	-0.08	20.9	0.0	--	57.4	--	--	--	--	--	--
507NOlive-SS5	11/11/15	0.00	20.9	0.0	--	0.0	--	--	--	--	--	--
507NOlive-SS6	11/11/15	0.00	20.9	0.0	--	0.0	--	--	--	--	--	--
507NOlive-SS7	11/11/15	0.00	20.9	0.0	--	0.0	--	--	--	--	--	--
507NOlive-Basement	02/10/16	--	--	0.0	0.0	1.6	--	--	--	--	--	--
507NOlive-Dininng Room	02/10/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
507NOlive-Floor drain in Basem	02/10/16	--	--	0.0	0.0	1.6	--	--	--	--	--	--
507NOlive-Front porch	02/10/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--
507NOlive-Kitchen	02/10/16	--	--	0.0	0.0	3.0	--	--	--	--	--	--
507NOlive-Living room	02/10/16	--	--	0.0	0.0	0.0	--	--	--	--	--	--

APPENDIX G-1. QUARTERLY IN-HOME EFFECTIVENESS MONITORING DETECTIONS SUMMARY
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location	Date Sampled	Direct Read Results					Tedlar Bag Results					
		Pressure (in-H2O)	Oxygen (%)	LEL (%)	Total Organic Vapor PID (ppmv)	FID TVPH Concentration (ppmv)	Oxygen (%)	Carbon Dioxide (%)	LEL (%)	Total Organic Vapor PID (ppmv)	FID TVPH Concentration (ppmv)	Methane (ppmv)
507NOlive-SS1	02/10/16	0.00	20.9	0.0	0.0	3.0	--	--	--	--	--	--
507NOlive-SS2	02/10/16	0.00	20.9	0.0	0.0	21.5	--	--	--	--	--	--
507NOlive-SS3	02/10/16	-0.06	20.9	0.0	0.0	25.0	--	--	--	--	--	--
507NOlive-SS4	02/10/16	-0.06	20.9	0.0	1.0	200	--	--	--	--	--	--
507NOlive-SS5	02/10/16	0.00	20.9	0.0	32.0	0.0	--	--	--	--	--	--
507NOlive-SS6	02/10/16	0.00	20.9	0.0	5.0	0.0	--	--	--	--	--	--
507NOlive-SS7	02/10/16	0.00	20.9	0.0	3.0	0.0	--	--	--	--	--	--
610NOldStLouis-Back entrance	11/11/15	--	--	0.0	--	0.0	--	--	--	--	--	--
610NOldStLouis-Basement	11/11/15	--	--	0.0	--	2.0	--	--	--	--	--	--
610NOldStLouis-Sump in basemen	11/11/15	--	--	0.0	--	2.5	--	--	--	--	--	--
610NOldStLouis-SS1	11/11/15	0.00	20.9	0.0	--	0.0	--	--	--	--	--	--
610NOldStLouis-SS2	11/11/15	0.00	10.8	0.0	--	0.0	--	--	--	--	--	--
610NOldStLouis-SS3	11/11/15	0.00	13.1	0.0	--	1.2	--	--	--	--	--	--

Notes:
- Sub slab measurements were not collected when water was pulled from probe, intial pressure measurements are indicative of water
- Field equipment includes a dwyer series 475 micromanometer, Thermo Scientific TVA1000 FID (flame ionization detector) equiped with PID (photoionization detector), and a REA Systems multiRAE four gas meter
- Additional action is required when FID concentrations exceed 10 ppmv in the indoor air or 350 ppmv in the sub slab

in-H_2O - inches of water
% - percent
LEL - Lower Explosive Limit
ppmv - parts per million by volume
-- - not analyzed
TVPH - total volatile petroleum hydrocarbons
FID - flame ionization detector

APPENDIX G-2. QUARTERLY IN-HOME SUB-SLAB PROBE PNEUMATIC SCREENING RESULTS
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location ID	Date Sampled	Static Pressure/ Vacuum ($in\text{-}H_2O$)	Estimated Soil Gas Permeability (cm^2)	Probe Specific Capacity ($cm^3/s\cdot in\ H_2O$)
100WCherry-SS1	11/12/2015	0.00	3.89E-06	-33.33
100WCherry-SS1	2/8/2016	0.00	9.72E-07	-8.33
100WCherry-SS2	11/12/2015	0.00	7.79E-06	-66.66
100WCherry-SS2	2/8/2016	0.00	6.47E-07	-5.55
101EBirch-SS1	11/10/2015	0.00	4.32E-06	-37.03
101EBirch-SS1	2/8/2016	0.00	1.11E-06	-9.52
101EBirch-SS2	11/10/2015	0.00	1.69E-06	-14.48
101EBirch-SS2	2/8/2016	--	--	--
101EBirch-SS3	11/10/2015	0.00	1.14E-06	-9.80
101EBirch-SS3	2/8/2016	0.00	9.59E-08	-0.83
101EForest-SS1	11/10/2015	0.00	2.78E-06	-23.80
101EForest-SS1	2/9/2016	0.00	2.29E-06	-19.60
101EForest-SS2	11/10/2015	0.00	2.99E-06	-25.63
101EForest-SS2	2/9/2016	0.00	1.85E-06	-15.86
101EForest-SS3	11/10/2015	0.00	1.85E-06	-15.86
101EForest-SS3	2/9/2016	0.00	1.77E-06	-15.14
101EWatkins-SS1	11/12/2015	0.00	1.88E-07	-1.61
101EWatkins-SS1	2/11/2016	0.00	1.61E-07	-1.38
101EWatkins-SS2	11/12/2015	0.00	4.22E-07	-3.61
101EWatkins-SS2	2/11/2016	0.00	3.23E-07	-2.77
101EWatkins-SS3	11/12/2015	0.00	3.54E-06	-30.29
101EWatkins-SS3	2/11/2016	0.00	6.47E-07	-5.55
102EDate-SS1	11/10/2015	0.00	4.87E-06	-41.66
102EDate-SS1	2/9/2016	0.00	3.54E-06	-30.29
102EDate-SS2	11/10/2015	0.00	1.95E-05	-166.65
102EDate-SS2	2/9/2016	-0.05	3.54E-06	-30.29
102EDate-SS3	11/10/2015	0.00	6.49E-06	-55.55
102EDate-SS3	2/9/2016	-0.05	2.59E-06	-22.21
102EDate-SS4	11/10/2015	0.00	4.87E-06	-41.66
102EDate-SS4	2/9/2016	0.00	2.43E-06	-20.83
107WBirch-SS1	11/11/2015	0.00	2.06E-07	-1.76
107WBirch-SS1	2/10/2016	0.00	1.24E-07	-1.07
107WBirch-SS2	11/11/2015	0.00	1.08E-05	-92.57
107WBirch-SS2	2/10/2016	0.00	2.59E-06	-22.21
107WBirch-SS3	11/11/2015	0.00	6.49E-06	-55.55
107WBirch-SS3	2/10/2016	0.00	3.54E-06	-30.29
107WForest-SS2	11/10/2015	0.00	1.08E-05	-92.57
107WForest-SS2	2/8/2016	0.00	1.30E-06	-11.10
107WForest-SS3	11/10/2015	0.00	7.79E-06	-66.66
107WForest-SS3	2/8/2016	0.00	1.30E-06	-11.10
111WDate-SS1	11/11/2015	0.00	2.78E-06	-23.80
111WDate-SS1	2/9/2016	0.00	2.43E-06	-20.83
111WDate-SS2	11/11/2015	0.00	5.56E-06	-47.61
111WDate-SS2	2/9/2016	0.00	2.78E-06	-23.80

APPENDIX G-2. QUARTERLY IN-HOME SUB-SLAB PROBE PNEUMATIC SCREENING RESULTS
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location ID	Date Sampled	Static Pressure/ Vacuum ($in\text{-}H_2O$)	Estimated Soil Gas Permeability (cm^2)	Probe Specific Capacity ($cm^3/s{\cdot}in\ H_2O$)
111WDate-SS3	11/11/2015	0.00	3.89E-06	-33.33
111WDate-SS3	2/9/2016	0.00	2.05E-06	-17.54
112WBirch-SS1	11/11/2015	-0.05	3.54E-06	-30.29
112WBirch-SS2	11/11/2015	0.00	4.87E-06	-41.66
112WBirch-SS3	11/11/2015	0.00	6.07E-07	-5.20
112WBirch-SS4	11/11/2015	0.00	9.73E-06	-83.33
114EForest-SS1	11/12/2015	0.00	9.73E-06	-83.33
114EForest-SS2	11/12/2015	0.00	1.25E-06	-10.74
114EForest-SS3	11/12/2015	0.00	6.70E-07	-5.74
116EWatkins-SS1	11/10/2015	0.00	9.73E-06	-83.33
116EWatkins-SS2	11/10/2015	0.00	4.32E-06	-37.03
116EWatkins-SS3	11/10/2015	0.00	1.44E-06	-12.34
117WBirch-SS1	11/11/2015	0.00	1.30E-05	-111.10
117WBirch-SS1	2/10/2016	0.00	2.05E-06	-17.54
117WBirch-SS2	11/11/2015	0.00	1.85E-06	-15.86
117WBirch-SS2	2/10/2016	0.00	2.05E-06	-17.54
117WBirch-SS3	11/11/2015	0.00	3.24E-06	-27.77
117WBirch-SS3	2/10/2016	0.00	3.54E-06	-30.29
118EElm-SS1	11/16/2015	0.00	8.10E-08	-0.73
118EElm-SS2	11/16/2015	0.00	8.23E-07	-7.09
118EElm-SS3	11/16/2015	0.00	2.53E-08	-0.25
118WBirch-SS1	11/10/2015	0.00	6.49E-06	-55.55
118WBirch-SS2	11/10/2015	0.00	6.49E-06	-55.55
118WBirch-SS3	11/10/2015	0.00	1.02E-07	-0.88
118WCherry-SS1	11/12/2015	0.00	4.87E-06	-41.66
118WCherry-SS1	2/11/2016	0.00	6.47E-07	-5.55
118WCherry-SS2	11/12/2015	0.00	2.78E-06	-23.80
118WCherry-SS2	2/11/2016	0.00	2.43E-06	-20.83
118WCherry-SS3	11/12/2015	0.00	3.89E-06	-33.33
118WCherry-SS3	2/11/2016	0.00	2.99E-06	-25.63
118WElm-SS1	11/10/2015	0.00	1.44E-06	-12.34
118WElm-SS1	2/8/2016	0.00	7.77E-07	-6.66
118WElm-SS2	11/10/2015	0.00	5.98E-07	-5.12
118WElm-SS2	2/8/2016	0.00	6.47E-07	-5.55
118WElm-SS3	11/10/2015	0.00	7.48E-08	-0.64
118WElm-SS3	2/8/2016	0.00	1.61E-07	-1.38
119WBirch-SS1	11/12/2015	0.00	4.46E-08	-0.39
119WBirch-SS1	2/11/2016	0.00	5.82E-09	-0.05
119WBirch-SS2	11/12/2015	0.00	1.56E-06	-13.33
119WBirch-SS2	2/11/2016	0.00	1.77E-06	-15.14
119WBirch-SS3	11/12/2015	0.00	1.85E-06	-15.86
119WBirch-SS3	2/11/2016	0.00	1.85E-06	-15.86

APPENDIX G-2. QUARTERLY IN-HOME SUB-SLAB PROBE PNEUMATIC SCREENING RESULTS
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location ID	Date Sampled	Static Pressure/ Vacuum (in-H_2O)	Estimated Soil Gas Permeability (cm^2)	Probe Specific Capacity ($cm^3/s \cdot in\ H_2O$)
119WCherry-SS1	11/12/2015	-0.07	1.34E-06	-11.49
119WCherry-SS2	11/12/2015	-0.13	9.97E-07	-8.54
119WCherry-SS3	11/12/2015	-0.18	7.62E-07	-6.53
119WDate-SS1	11/11/2015	0.00	2.16E-06	-18.51
119WDate-SS1	2/10/2016	0.00	1.62E-06	-13.88
119WDate-SS2	11/11/2015	0.00	2.05E-06	-17.54
119WDate-SS2	2/10/2016	0.00	9.72E-07	-8.33
119WDate-SS3	11/11/2015	0.00	2.78E-06	-23.80
119WDate-SS3	2/10/2016	0.00	1.95E-06	-16.66
122WCherry-SS1	11/10/2015	0.00	8.10E-07	-6.94
122WCherry-SS1	2/9/2016	0.00	3.88E-07	-3.33
122WCherry-SS2	11/10/2015	0.00	2.99E-06	-25.63
122WCherry-SS2	2/9/2016	0.00	2.05E-06	-17.54
122WCherry-SS3	11/10/2015	0.00	1.44E-06	-12.34
122WCherry-SS3	2/9/2016	0.00	1.77E-06	-15.14
123EElm-SS1	11/12/2015	0.00	2.52E-09	-0.03
123EElm-SS2	11/12/2015	0.00	1.30E-05	-111.10
123EElm-SS3	11/12/2015	0.00	7.79E-06	-66.66
125EForest-SS1	11/13/2015	0.00	1.64E-08	-0.14
125EForest-SS3	11/13/2015	0.00	6.36E-08	-0.55
125WBirchRear-SS1	2/8/2016	0.00	9.72E-07	-8.33
125WBirchRear-SS2	2/8/2016	0.00	4.31E-07	-3.70
125WBirch-SS1	2/8/2016	0.00	3.23E-07	-2.77
125WBirch-SS2	2/8/2016	0.00	5.55E-07	-4.75
125WBirch-SS3	2/8/2016	0.00	7.77E-07	-6.66
126EElm-SS1	11/10/2015	0.00	2.02E-07	-1.74
126EElm-SS1	2/10/2016	0.00	2.98E-07	-2.56
126EElm-SS2	11/15/2015	0.00	6.49E-06	-55.55
126EElm-SS2	2/10/2016	0.00	3.89E-06	-33.33
126EElm-SS3	11/10/2015	0.00	5.56E-06	-47.61
126EElm-SS3	2/10/2016	0.00	3.54E-06	-30.29
127EElm-SS1	11/10/2015	0.00	1.67E-07	-1.43
127EElm-SS1	2/8/2016	0.00	1.84E-07	-1.58
127EElm-SS2	11/10/2015	0.00	3.18E-07	-2.72
127EElm-SS2	2/8/2016	0.00	6.47E-07	-5.55
127EElm-SS3	11/10/2015	0.00	1.62E-06	-13.88
127EElm-SS3	2/8/2016	0.00	9.72E-07	-8.33
128WCherry-SS1	11/10/2015	0.00	1.98E-07	-1.70
128WCherry-SS2	11/10/2015	0.00	2.26E-07	-1.94
128WCherry-SS3	11/10/2015	0.00	1.18E-06	-10.09
129WBirch-SS1	11/11/2015	0.00	5.47E-07	-4.69

APPENDIX G-2. QUARTERLY IN-HOME SUB-SLAB PROBE PNEUMATIC SCREENING RESULTS
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location ID	Date Sampled	Static Pressure/ Vacuum ($in\text{-}H_2O$)	Estimated Soil Gas Permeability (cm^2)	Probe Specific Capacity ($cm^3/s \cdot in\ H_2O$)
129WBirch-SS1	2/10/2016	0.00	3.89E-06	-33.33
129WBirch-SS2	11/11/2015	0.00	7.62E-07	-6.53
129WBirch-SS2	2/10/2016	0.00	1.77E-06	-15.14
129WBirch-SS3	11/11/2015	0.00	3.66E-07	-3.14
129WBirch-SS3	2/10/2016	0.00	6.47E-07	-5.55
134EWatkins-SS1	2/8/2016	0.00	4.31E-07	-3.70
134EWatkins-SS2	2/8/2016	0.00	4.31E-07	-3.70
134EWatkins-SS3	2/8/2016	0.00	3.53E-07	-3.02
135EForest-SS1	2/10/2016	0.00	7.77E-07	-6.66
135EForest-SS2	2/10/2016	0.00	2.29E-06	-19.60
135EForest-SS3	2/10/2016	0.00	2.16E-06	-18.51
142EWatkins-SS1	11/11/2015	0.00	3.67E-08	-0.32
142EWatkins-SS2	11/11/2015	0.00	1.62E-06	-13.88
142EWatkins-SS3	11/11/2015	0.00	2.67E-08	-0.23
201NOlive-SS1	11/9/2015	0.00	5.56E-06	-47.61
201NOlive-SS2	11/9/2015	0.00	4.32E-06	-37.03
201NOlive-SS3	11/9/2015	0.00	1.56E-07	-1.34
309NOlive-SS1	11/10/2015	0.00	5.82E-09	-0.05
309NOlive-SS1	2/8/2016	0.00	4.17E-09	-0.04
309NOlive-SS2	11/10/2015	0.00	3.24E-06	-27.77
309NOlive-SS2	2/8/2016	0.00	2.29E-06	-19.60
309NOlive-SS3	11/10/2015	0.00	3.69E-07	-3.17
309NOlive-SS3	2/8/2016	0.00	3.53E-07	-3.02
310NDelmar-SS1	11/10/2015	0.00	3.84E-07	-3.29
310NDelmar-SS1	2/9/2016	-0.05	6.47E-07	-5.55
310NDelmar-SS2	11/10/2015	0.00	4.87E-06	-41.66
310NDelmar-SS2	2/9/2016	-0.05	2.43E-06	-20.83
310NDelmar-SS3	11/10/2015	0.00	2.29E-06	-19.60
310NDelmar-SS3	2/9/2016	-0.06	2.99E-06	-25.63
310NDelmar-SS4	11/10/2015	0.00	2.16E-06	-18.51
310NDelmar-SS4	2/9/2016	-0.06	2.59E-06	-22.21
310NDelmar-SS5	11/10/2015	0.00	1.30E-06	-11.10
310NDelmar-SS5	2/9/2016	-0.06	2.43E-06	-20.83
501NOlive-SS1	11/12/2015	0.00	2.52E-09	-0.03
501NOlive-SS1	2/10/2016	-0.07	2.29E-06	-19.60
501NOlive-SS2	11/12/2015	0.08	2.52E-09	-0.03
501NOlive-SS2	2/10/2016	-0.12	7.77E-07	-6.66
501NOlive-SS3	11/12/2015	--	--	--
501NOlive-SS3	2/10/2016	0.00	2.78E-06	-23.80
504NDelmar-SS1	11/11/2015	0.00	2.99E-06	-25.63
504NDelmar-SS2	11/11/2015	-0.17	1.05E-06	-9.00
504NDelmar-SS3	11/11/2015	0.00	2.78E-06	-23.80

APPENDIX G-2. QUARTERLY IN-HOME SUB-SLAB PROBE PNEUMATIC SCREENING RESULTS
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location ID	Date Sampled	Static Pressure/ Vacuum (in-H_2O)	Estimated Soil Gas Permeability (cm^2)	Probe Specific Capacity ($cm^3/s \cdot in\ H_2O$)
507NOlive-SS1	11/11/2015	0.00	6.23E-09	-0.06
507NOlive-SS1	2/10/2016	0.00	2.54E-09	-0.03
507NOlive-SS2	11/11/2015	-0.05	4.87E-06	-41.66
507NOlive-SS2	2/10/2016	0.00	2.43E-06	-20.83
507NOlive-SS3	11/11/2015	-0.08	2.99E-06	-25.63
507NOlive-SS3	2/10/2016	-0.06	1.85E-06	-15.86
507NOlive-SS4	11/11/2015	-0.08	2.59E-06	-22.21
507NOlive-SS5	11/11/2015	0.00	4.87E-06	-41.66
507NOlive-SS5	2/10/2016	0.00	1.95E-06	-16.66
507NOlive-SS6	11/11/2015	0.00	9.97E-07	-8.54
507NOlive-SS7	11/11/2015	0.00	2.52E-09	-0.03
516NDelmar-SS1	11/11/2015	-0.09	2.29E-06	-19.60
516NDelmar-SS1	2/10/2016	0.00	2.29E-06	-19.60
516NDelmar-SS2	11/11/2015	-0.09	2.29E-06	-19.60
516NDelmar-SS2	2/10/2016	0.00	2.16E-06	-18.51
516NDelmar-SS3	11/11/2015	-0.08	1.25E-06	-10.74
516NDelmar-SS3	2/10/2016	0.00	9.72E-07	-8.33
516NDelmar-SS4	11/11/2015	-0.09	1.62E-06	-13.88
516NDelmar-SS4	2/10/2016	0.00	9.72E-07	-8.33
518NDelmar-SS1	11/11/2015	-0.11	1.14E-06	-9.80
518NDelmar-SS1	2/10/2016	-0.07	9.72E-07	-8.33
518NDelmar-SS2	11/11/2015	-0.11	2.03E-07	-1.75
518NDelmar-SS2	2/10/2016	0.00	2.58E-07	-2.21
518NDelmar-SS3	11/11/2015	-0.26	2.89E-08	-0.25
518NDelmar-SS3	2/10/2016	0.23	1.16E-08	-0.10
610NOldStLouis-SS1	11/10/2015	0.00	2.62E-07	-2.24
610NOldStLouis-SS2	11/10/2015	0.00	4.32E-06	-37.03
610NOldStLouis-SS3	11/10/2015	0.00	2.87E-07	-2.46
619NOlive-SS1	2/9/2016	0.00	2.58E-07	-2.21
619NOlive-SS2	2/9/2016	0.00	1.38E-07	-1.18
619NOlive-SS3	2/9/2016	0.00	2.43E-06	-20.83
715NDelmar-CC1	11/13/2015	-0.23	1.28E-07	-1.10
715NDelmar-CC1	2/11/2016	-0.20	2.15E-07	-1.84
715NDelmar-CC10	11/13/2015	-0.33	9.97E-07	-8.54
715NDelmar-CC10	2/11/2016	-0.26	6.47E-07	-5.55
715NDelmar-CC11	11/13/2015	-0.22	7.06E-07	-6.05
715NDelmar-CC11	2/11/2016	-0.23	5.55E-07	-4.75
715NDelmar-CC12	11/13/2015	0.00	2.65E-09	-0.03
715NDelmar-CC12	2/11/2016	0.00	8.34E-09	-0.08
715NDelmar-CC2	11/13/2015	0.00	4.87E-06	-41.66
715NDelmar-CC2	2/11/2016	-0.17	6.47E-07	-5.55
715NDelmar-CC3	11/13/2015	0.00	7.55E-08	-0.65
715NDelmar-CC3	2/11/2016	-0.12	1.28E-07	-1.10
715NDelmar-CC4	11/13/2015	0.00	6.49E-06	-55.55
715NDelmar-CC4	2/11/2016	0.00	2.59E-06	-22.21
715NDelmar-CC5	11/13/2015	0.00	9.73E-06	-83.33

APPENDIX G-2. QUARTERLY IN-HOME SUB-SLAB PROBE PNEUMATIC SCREENING RESULTS
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location ID	Date Sampled	Static Pressure/ Vacuum ($in\text{-}H_2O$)	Estimated Soil Gas Permeability (cm^2)	Probe Specific Capacity ($cm^3/s \cdot in\ H_2O$)
715NDelmar-CC5	2/11/2016	0.00	2.59E-06	-22.21
715NDelmar-CC6	11/13/2015	0.00	4.32E-06	-37.03
715NDelmar-CC6	2/11/2016	-0.16	9.72E-07	-8.33
715NDelmar-CC7	11/13/2015	0.00	1.34E-06	-11.49
715NDelmar-CC7	2/11/2016	-0.09	7.77E-07	-6.66
715NDelmar-CC7D	11/13/2015	0.00	8.10E-07	-6.94
715NDelmar-CC7D	2/11/2016	-0.12	6.47E-07	-5.55
715NDelmar-CC8	11/13/2015	0.00	2.16E-06	-18.51
715NDelmar-CC8	2/11/2016	-0.08	9.72E-07	-8.33
715NDelmar-CC9	11/13/2015	0.00	2.54E-09	-0.03
715NDelmar-CC9	2/11/2016	0.00	1.55E-08	-0.14

Notes:
-- - water in sub-slab probe
$in\text{-}H_2O$ - inches of water
cm^2 - square centimeters
$cm^3/s \cdot in\ H_2O$ - cubic centimeters per second per inch of water

APPENDIX H

APPENDIX H-1. RIVER STAGE TRIGGERED MONITORING EVENT (EBMP-26) FIELD SCREENING DETECTION RESULTS, DECEMBER 2015
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
100WCherry-Bathroom	12/01/15	2.2	0.0	--	--	0.0
100WCherry-Central Room	12/01/15	2.2	0.0	--	--	0.0
100WCherry-Central work area	12/01/15	2.2	0.0	--	--	0.0
100WCherry-Front counter	12/01/15	2.2	0.0	--	--	0.0
100WCherry-Front desk	12/01/15	2.2	0.0	--	--	0.0
100WCherry-Front entrance	12/01/15	2.2	0.0	--	--	0.0
100WCherry-Restroom	12/01/15	2.2	0.0	--	--	0.0
100WCherry-SE room	12/01/15	2.2	0.0	--	--	0.0
100WCherry-SW room	12/01/15	2.2	0.0	--	--	0.0
100WCherry-SS1	12/01/15	0.0	0.0	20.9	0.00	0.0
100WCherry-SS2	12/01/15	0.0	0.0	20.9	0.00	0.0
101EBirch-Basement	12/01/15	2.1	0.0	--	--	0.0
101EBirch-Drain in basement	12/01/15	2.1	0.0	--	--	0.0
101EBirch-N drain Basement	12/01/15	2.1	0.0	--	--	0.0
101EBirch-NW Bedroom Basement	12/01/15	2.1	0.0	--	--	0.0
101EBirch-S Drain Basement	12/01/15	2.1	0.0	--	--	0.0
101EBirch-SS1	12/01/15	0.0	0.0	20.9	0.00	0.0
101EBirch-SS2	12/01/15	0.0	0.0	--	0.23	--
101EBirch-SS3	12/01/15	--	0.0	--	0.07	--
111WDate-Basement	12/01/15	2.4	0.0	--	--	0.0
111WDate-Basement floor drain	12/01/15	4.2	0.0	--	--	0.0
111WDate-Crawl space-S of Base	12/01/15	0.0	0.0	--	--	0.0
111WDate-NE Room Basement	12/01/15	2.4	0.0	--	--	0.0
111WDate-NW room-Former Kitche	12/01/15	2.5	0.0	--	--	0.0
111WDate-SS1	12/01/15	0.0	0.0	17.6	0.00	0.0
111WDate-SS2	12/01/15	0.0	0.0	20.0	0.00	0.0
111WDate-SS3	12/01/15	0.0	0.0	19.4	0.00	0.0
116EWatkins-Basement	12/01/15	2.7	0.0	--	--	0.0
116EWatkins-Basement-Bathroom	12/01/15	2.7	0.0	--	--	0.0
116EWatkins-Basement-Crawl spa	12/01/15	0.0	0.0	--	--	0.0

APPENDIX H-1. RIVER STAGE TRIGGERED MONITORING EVENT (EBMP-26) FIELD SCREENING DETECTION RESULTS, DECEMBER 2015
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
116EWatkins-Basement-Floor dra	12/01/15	2.5	0.0	--	--	0.0
116EWatkins-Basement-Floor dra	12/01/15	2.3	0.0	--	--	0.0
116EWatkins-Basement-Office	12/01/15	2.5	0.0	--	--	0.0
116EWatkins-Dining room	12/01/15	3.4	0.0	--	--	0.0
116EWatkins-Front porch	12/01/15	0.0	0.0	--	--	0.0
116EWatkins-Kitchen	12/01/15	3.4	0.0	--	--	0.0
116EWatkins-Living room	12/01/15	3.4	0.0	--	--	0.0
116EWatkins-Shower Drain	12/01/15	0.0	0.0	--	--	0.0
116EWatkins-SS1	12/01/15	0.0	0.0	20.9	0.00	0.0
116EWatkins-SS2	12/01/15	0.0	0.0	20.9	0.00	0.0
116EWatkins-SS3	12/01/15	0.0	0.0	20.9	0.00	0.0
116EWatkins-Basement	12/03/15	0.0	0.0	--	--	0.0
116EWatkins-Basement-Bathroom	12/03/15	0.0	0.0	--	--	0.0
116EWatkins-Basement-Crawl spa	12/03/15	0.0	0.0	--	--	0.0
116EWatkins-Basement-Floor dra	12/03/15	0.0	0.0	--	--	0.0
116EWatkins-Basement-Floor dra	12/03/15	0.0	0.0	--	--	0.0
116EWatkins-Basement-Office	12/03/15	0.0	0.0	--	--	0.0
116EWatkins-Dining room	12/03/15	0.0	0.0	--	--	0.0
116EWatkins-Front porch	12/03/15	0.0	0.0	--	--	0.0
116EWatkins-Kitchen	12/03/15	0.0	0.0	--	--	0.0
116EWatkins-Living room	12/03/15	0.0	0.0	--	--	0.0
116EWatkins-Shower Drain	12/03/15	0.0	0.0	--	--	0.0
116EWatkins-SS1	12/03/15	10.4	0.0	20.9	0.00	0.0
116EWatkins-SS2	12/03/15	0.0	0.0	20.9	0.00	0.0
116EWatkins-SS3	12/03/15	0.0	0.0	20.9	0.00	0.0
117WBirch-Back/N porch	12/02/15	0.0	0.0	--	--	0.0
117WBirch-Basement	12/02/15	2.6	0.0	--	--	0.0
117WBirch-Floor Drain	12/02/15	2.4	0.0	--	--	0.0
117WBirch-SS1	12/02/15	0.0	0.0	20.9	0.00	0.0
117WBirch-SS2	12/02/15	0.0	0.0	20.2	0.00	0.0
117WBirch-SS3	12/02/15	0.0	0.0	20.4	0.00	0.0

APPENDIX H-1. RIVER STAGE TRIGGERED MONITORING EVENT (EBMP-26) FIELD SCREENING DETECTION RESULTS, DECEMBER 2015
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
117WBirch-Back/N porch	12/04/15	2.3	0.0	--	--	0.0
117WBirch-Basement	12/04/15	2.4	0.0	--	--	0.0
117WBirch-Floor Drain	12/04/15	2.4	0.0	--	--	0.0
117WBirch-SS1	12/04/15	0.0	0.0	20.9	0.00	0.0
117WBirch-SS2	12/04/15	0.0	0.0	19.0	0.00	0.0
117WBirch-SS3	12/04/15	0.0	0.0	19.2	0.00	0.0
117WBirch-Back/N porch	12/07/15	0.0	0.0	--	--	0.0
117WBirch-Basement	12/07/15	2.4	0.0	--	--	0.0
117WBirch-Floor Drain	12/07/15	2.1	0.0	--	--	0.0
117WBirch-SS1	12/07/15	0.0	0.0	20.9	0.00	0.0
117WBirch-SS2	12/07/15	0.0	0.0	20.5	0.00	0.0
117WBirch-SS3	12/07/15	0.0	0.0	20.3	0.00	0.0
125WBirch-Basement E Floor dra	12/01/15	2.7	0.0	--	--	0.0
125WBirch-Basement E room	12/01/15	2.8	0.0	--	--	0.0
125WBirch-Basement NW Floor dr	12/01/15	2.8	0.0	--	--	0.0
125WBirch-Basement NW room	12/01/15	2.8	0.0	--	--	0.0
125WBirch-Crawl space	12/01/15	0.0	0.0	--	--	0.0
125WBirch-Kitchen	12/01/15	3.1	0.0	--	--	0.0
125WBirch-SS1	12/01/15	0.0	0.0	20.1	0.00	0.0
125WBirch-SS2	12/01/15	0.0	0.0	20.5	0.00	0.0
125WBirch-SS3	12/01/15	6.8	0.0	20.9	0.00	0.0
125WBirchRear-Basement	12/01/15	3.2	0.0	--	--	0.0
125WBirchRear-Basement Bathroo	12/01/15	3.2	0.0	--	--	0.0
125WBirchRear-Crawl space	12/01/15	0.0	0.0	--	--	0.0
125WBirchRear-Floor drain in B	12/01/15	3.1	0.0	--	--	0.0
125WBirchRear-SS1	12/01/15	3.8	0.0	20.9	0.00	0.0
125WBirchRear-SS2	12/01/15	0.0	0.0	19.2	0.00	0.0
125WBirchRear-Basement	12/03/15	1.4	0.0	--	--	0.0
125WBirchRear-Basement Bathroo	12/03/15	1.5	0.0	--	--	0.0
125WBirchRear-Crawl space	12/03/15	0.0	0.0	--	--	0.0

APPENDIX H-1. RIVER STAGE TRIGGERED MONITORING EVENT (EBMP-26) FIELD SCREENING DETECTION RESULTS, DECEMBER 2015
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
125WBirchRear-Floor drain in B	12/03/15	1.4	0.0	--	--	0.0
125WBirchRear-SS1	12/03/15	0.0	0.0	20.5	0.00	0.0
125WBirchRear-SS2	12/03/15	0.0	0.0	19.7	0.00	0.0
201NOlive-Basement - NW room (	12/01/15	1.4	0.0	--	--	0.0
201NOlive-Basement-Drain Plugg	12/01/15	1.4	0.0	--	--	0.0
201NOlive-Basement-E Room	12/01/15	1.4	0.0	--	--	0.0
201NOlive-Basement-SW Room	12/01/15	1.4	0.0	--	--	0.0
201NOlive-Kitchen	12/01/15	2.8	0.0	--	--	0.0
201NOlive-Living Room	12/01/15	2.8	0.0	--	--	0.0
201NOlive-SE living room	12/01/15	2.8	0.0	--	--	0.0
201NOlive-W porch/computer roo	12/01/15	2.8	0.0	--	--	0.0
201NOlive-SS1	12/01/15	0.0	0.0	20.9	0.00	0.0
201NOlive-SS2	12/01/15	0.0	0.0	20.9	0.00	0.0
201NOlive-SS3	12/01/15	0.0	0.0	20.9	0.00	0.0
507NOlive-Basement	12/02/15	0.0	0.0	--	--	0.0
507NOlive-Dininng Room	12/02/15	0.0	0.0	--	--	0.0
507NOlive-Floor drain in Basem	12/02/15	0.0	0.0	--	--	0.0
507NOlive-Front porch	12/02/15	0.0	0.0	--	--	0.0
507NOlive-Kitchen	12/02/15	0.0	0.0	--	--	0.0
507NOlive-Living room	12/02/15	0.0	0.0	--	--	0.0
507NOlive-SS1	12/02/15	0.0	0.0	20.9	0.00	0.0
507NOlive-SS2	12/02/15	0.0	0.0	20.9	0.00	0.0
507NOlive-SS3	12/02/15	90.0	0.0	20.9	-0.09	0.0
507NOlive-SS4	12/02/15	110	0.0	20.9	-0.10	0.0
507NOlive-SS5	12/02/15	0.0	0.0	20.9	0.00	0.0
507NOlive-SS6	12/02/15	0.0	0.0	20.9	0.00	0.0
507NOlive-SS7	12/02/15	0.0	0.0	20.9	0.00	0.0
507NOlive-Basement	12/04/15	0.0	0.0	--	--	0.0
507NOlive-Bathroom in Basement	12/04/15	0.0	0.0	--	--	0.0
507NOlive-Computer room	12/04/15	0.0	0.0	--	--	0.0
507NOlive-Floor drain in Basem	12/04/15	0.0	0.0	--	--	0.0

APPENDIX H-1. RIVER STAGE TRIGGERED MONITORING EVENT (EBMP-26) FIELD SCREENING DETECTION RESULTS, DECEMBER 2015
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
507NOlive-Front porch	12/04/15	0.0	0.0	--	--	0.0
507NOlive-Kitchen	12/04/15	0.0	0.0	--	--	0.0
507NOlive-Living room	12/04/15	0.0	0.0	--	--	0.0
507NOlive-SS1	12/04/15	0.0	0.0	20.9	-0.08	0.0
507NOlive-SS2	12/04/15	0.0	0.0	20.9	-0.06	0.0
507NOlive-SS3	12/04/15	20.0	0.0	20.9	-0.07	0.0
507NOlive-SS4	12/04/15	40.0	0.0	20.9	-0.05	0.0
507NOlive-SS5	12/04/15	0.0	0.0	20.9	0.00	0.0
507NOlive-SS6	12/04/15	0.0	0.0	20.9	0.00	0.0
507NOlive-SS7	12/04/15	0.0	0.0	20.9	0.00	0.0
507NOlive-Basement	12/07/15	0.0	0.0	--	--	0.0
507NOlive-Dininng Room	12/07/15	0.0	0.0	--	--	0.0
507NOlive-Floor drain in Basem	12/07/15	0.0	0.0	--	--	0.0
507NOlive-Front porch	12/07/15	0.0	0.0	--	--	0.0
507NOlive-Kitchen	12/07/15	0.0	0.0	--	--	0.0
507NOlive-Living room	12/07/15	0.0	0.0	--	--	0.0
507NOlive-SS1	12/07/15	0.0	0.0	20.9	-0.10	0.0
507NOlive-SS2	12/07/15	0.0	0.0	20.9	-0.07	0.0
507NOlive-SS3	12/07/15	46.0	0.0	20.9	-0.09	0.0
507NOlive-SS4	12/07/15	91.0	0.0	20.9	-0.11	0.0
507NOlive-SS5	12/07/15	0.0	0.0	20.9	0.00	0.0
507NOlive-SS6	12/07/15	0.0	0.0	20.9	0.00	0.0
507NOlive-SS7	12/07/15	0.0	0.0	20.9	0.00	0.0
610NOldStLouis-Back entrance	12/02/15	1.3	0.0	--	--	0.0
610NOldStLouis-Basement	12/02/15	1.7	0.0	--	--	0.0
610NOldStLouis-Sump in basemen	12/02/15	1.5	0.0	--	--	0.0
610NOldStLouis-SS1	12/02/15	0.0	0.0	13.6	0.00	0.0
610NOldStLouis-SS2	12/02/15	0.0	0.0	11.6	0.00	0.0
610NOldStLouis-SS3	12/02/15	0.0	0.0	17.9	0.00	0.0
619NOlive-Basement (E end)	12/01/15	1.2	0.0	--	--	0.0
619NOlive-Basement (W end)	12/01/15	1.2	0.0	--	--	0.0

APPENDIX H-1. RIVER STAGE TRIGGERED MONITORING EVENT (EBMP-26) FIELD SCREENING DETECTION RESULTS, DECEMBER 2015
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
619NOlive-Drain in Basement	12/01/15	1.2	0.0	--	--	0.0
619NOlive-SS1	12/01/15	--	0.0	--	0.05	--
619NOlive-SS2	12/01/15	0.0	0.0	20.9	0.00	0.0
619NOlive-SS3	12/01/15	0.0	0.0	18.5	0.00	0.0

Notes:
- Sub slab measurements were not collected when water was pulled from probe, intial pressure measurements are indicative of water
- Field equipment includes a dwyer series 475 micromanometer, Thermo Scientific TVA1000 FID (flame ionization detector) equiped with PID (photoionization detector), and a REA Systems multiRAE four gas meter
- Additional action is required when FID concentrations exceed 10 ppmv in the indoor air or 350 ppmv in the sub slab

in-H_2O - inches of water
% - percent
%LEL - percent lower explosive limit
ppmv - parts per million by volume
-- - not analyzed
TVPH - total volatile petroleum hydrocarbons
FID - flame ionization detector

APPENDIX H-2. RIVER STAGE TRIGGERED MONITORING EVENT (EBMP-27) FIELD SCREENING DETECTION RESULTS, DECEMBER 2015
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
116EWatkins-Back Porch	12/17/15	0.0	0.0	--	--	0.0
116EWatkins-Basement	12/17/15	1.4	0.0	--	--	0.0
116EWatkins-Basement-Bathroom	12/17/15	0.0	0.0	--	--	0.0
116EWatkins-Basement-Crawl spa	12/17/15	0.0	0.0	--	--	0.0
116EWatkins-Basement-Floor dra	12/17/15	0.0	0.0	--	--	0.0
116EWatkins-Basement-Floor dra	12/17/15	0.0	0.0	--	--	0.0
116EWatkins-Basement-Office	12/17/15	0.0	0.0	--	--	0.0
116EWatkins-Dining room	12/17/15	0.0	0.0	--	--	0.0
116EWatkins-Front porch	12/17/15	0.0	0.0	--	--	0.0
116EWatkins-Kitchen	12/17/15	0.0	0.0	--	--	0.0
116EWatkins-Living room	12/17/15	0.0	0.0	--	--	0.0
116EWatkins-SS1	12/17/15	0.0	0.0	20.9	0.00	0.0
116EWatkins-SS2	12/17/15	0.0	0.0	20.9	0.00	0.0
116EWatkins-SS3	12/17/15	0.0	0.0	20.9	0.00	0.0
117WBirch-Back/N porch	12/16/15	3.4	0.0	--	--	0.0
117WBirch-Basement	12/16/15	5.9	0.0	--	--	0.0
117WBirch-Floor Drain	12/16/15	5.4	0.0	--	--	0.0
117WBirch-SS1	12/16/15	--	--	--	--	--
117WBirch-SS2	12/16/15	0.0	0.0	20.9	0.00	0.0
117WBirch-SS3	12/16/15	0.0	0.0	17.8	0.00	0.0
117WBirch-Back/N porch	12/18/15	0.0	0.0	--	--	0.0
117WBirch-Basement	12/18/15	0.0	0.0	--	--	0.0
117WBirch-Floor Drain	12/18/15	0.0	0.0	--	--	0.0
117WBirch-SS1	12/18/15	7.8	0.0	20.9	0.00	0.0
117WBirch-SS2	12/18/15	19.8	0.0	20.9	0.00	0.0
117WBirch-SS3	12/18/15	0.0	0.0	17.8	0.00	0.0
125WBirch-Basement E Floor dra	12/16/15	1.3	0.0	--	--	0.0
125WBirch-Basement E room	12/16/15	0.0	0.0	--	--	0.0
125WBirch-Basement NW Floor dr	12/16/15	0.0	0.0	--	--	0.0
125WBirch-Basement NW room	12/16/15	1.2	0.0	--	--	0.0
125WBirch-Crawl space	12/16/15	0.0	0.0	--	--	0.0

APPENDIX H-2. RIVER STAGE TRIGGERED MONITORING EVENT (EBMP-27) FIELD SCREENING DETECTION RESULTS, DECEMBER 2015
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
125WBirch-Floor drain (with Dr	12/16/15	0.0	0.0	--	--	0.0
125WBirch-Kitchen	12/16/15	0.0	0.0	--	--	0.0
125WBirch-SS1	12/16/15	0.0	0.0	20.9	0.00	0.0
125WBirch-SS2	12/16/15	0.0	0.0	20.9	0.00	0.0
125WBirch-SS3	12/16/15	0.0	0.0	20.1	0.00	0.0
125WBirchRear-Basement	12/18/15	1.7	0.0	--	--	0.0
125WBirchRear-Basement Bathroo	12/18/15	1.4	0.0	--	--	0.0
125WBirchRear-Crawl space	12/18/15	0.0	0.0	--	--	0.0
125WBirchRear-Floor drain in B	12/18/15	1.6	0.0	--	--	0.0
125WBirchRear-SS1	12/18/15	0.0	0.0	20.5	0.00	0.0
125WBirchRear-SS2	12/18/15	0.0	0.0	20.4	0.00	0.0
129WBirch-Basement	12/16/15	1.3	0.0	--	--	0.0
129WBirch-Basement-central roo	12/16/15	2.0	0.0	--	--	0.0
129WBirch-Basement-CW central	12/16/15	2.0	0.0	--	--	0.0
129WBirch-Basement-furnace roo	12/16/15	3.4	0.0	--	--	0.0
129WBirch-Basement-laundry roo	12/16/15	2.1	0.0	--	--	0.0
129WBirch-Basement-NE bedroom	12/16/15	2.8	0.0	--	--	0.0
129WBirch-Basement-NE Room by	12/16/15	1.3	0.0	--	--	0.0
129WBirch-Basement-NW bathroom	12/16/15	2.1	0.0	--	--	0.0
129WBirch-Basement-NW bedroom	12/16/15	2.0	0.0	--	--	0.0
129WBirch-Basement-NW room	12/16/15	2.2	0.0	--	--	0.0
129WBirch-Basement-S Game Room	12/16/15	3.1	0.0	--	--	0.0
129WBirch-Basement-Shower Drai	12/16/15	2.0	0.0	--	--	0.0
129WBirch-NE Family Room	12/16/15	0.0	0.0	--	--	0.0
129WBirch-SS1	12/16/15	0.0	0.0	19.9	0.00	0.0
129WBirch-SS2	12/16/15	0.0	0.0	20.9	0.00	0.0
129WBirch-SS3	12/16/15	0.0	0.0	19.1	0.00	0.0
129WBirch-Basement	12/18/15	0.0	0.0	--	--	0.0
129WBirch-Basement-central roo	12/18/15	0.0	0.0	--	--	0.0
129WBirch-Basement-CW central	12/18/15	0.0	0.0	--	--	0.0
129WBirch-Basement-furnace roo	12/18/15	2.7	0.0	--	--	0.0
129WBirch-Basement-game room	12/18/15	0.0	0.0	--	--	0.0

APPENDIX H-2. RIVER STAGE TRIGGERED MONITORING EVENT (EBMP-27) FIELD SCREENING DETECTION RESULTS, DECEMBER 2015
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
129WBirch-Basement-laundry roo	12/18/15	0.0	0.0	--	--	0.0
129WBirch-Basement-NE bedroom	12/18/15	0.0	0.0	--	--	0.0
129WBirch-Basement-NE Room by	12/18/15	0.0	0.0	--	--	0.0
129WBirch-Basement-NW bathroom	12/18/15	0.0	0.0	--	--	0.0
129WBirch-Basement-NW bedroom	12/18/15	0.0	0.0	--	--	0.0
129WBirch-Basement-NW room	12/18/15	0.0	0.0	--	--	0.0
129WBirch-Basement-S Game Room	12/18/15	0.0	0.0	--	--	0.0
129WBirch-Basement-Shower Drai	12/18/15	0.0	0.0	--	--	0.0
129WBirch-NE Family Room	12/18/15	0.0	0.0	--	--	0.0
129WBirch-SS1	12/18/15	0.0	0.0	18.8	0.00	1.3
129WBirch-SS2	12/18/15	0.0	0.0	20.9	0.00	0.0
129WBirch-SS3	12/18/15	0.0	0.0	18.9	0.00	1.5
507NOlive-Basement	12/16/15	0.0	0.0	--	--	0.0
507NOlive-Bathroom in Basement	12/16/15	0.0	0.0	--	--	0.0
507NOlive-Computer room	12/16/15	0.0	0.0	--	--	0.0
507NOlive-Floor drain in Basem	12/16/15	0.0	0.0	--	--	0.0
507NOlive-Front porch	12/16/15	0.0	0.0	--	--	0.0
507NOlive-Kitchen	12/16/15	0.0	0.0	--	--	0.0
507NOlive-Living room	12/16/15	0.0	0.0	--	--	0.0
507NOlive-SS1	12/16/15	0.0	0.0	20.9	0.00	0.0
507NOlive-SS2	12/16/15	0.0	0.0	20.9	0.00	0.0
507NOlive-SS3	12/16/15	28.0	0.0	20.9	-0.06	0.0
507NOlive-SS4	12/16/15	14.0	0.0	20.9	-0.07	0.0
507NOlive-SS5	12/16/15	0.0	0.0	20.9	0.00	0.0
507NOlive-SS6	12/16/15	0.0	0.0	20.9	0.00	0.0
507NOlive-SS7	12/16/15	0.0	0.0	20.9	0.00	0.0
507NOlive-Basement	12/18/15	0.0	0.0	--	--	0.0
507NOlive-Bathroom in Basement	12/18/15	0.0	0.0	--	--	0.0
507NOlive-Computer room	12/18/15	0.0	0.0	--	--	0.0
507NOlive-Dininng Room	12/18/15	0.0	0.0	--	--	0.0
507NOlive-Floor drain in Basem	12/18/15	0.0	0.0	--	--	0.0
507NOlive-Front porch	12/18/15	0.0	0.0	--	--	0.0
507NOlive-Living room	12/18/15	0.0	0.0	--	--	0.0

APPENDIX H-2. RIVER STAGE TRIGGERED MONITORING EVENT (EBMP-27) FIELD SCREENING DETECTION RESULTS, DECEMBER 2015
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
507NOlive-SS1	12/18/15	0.0	0.0	20.9	0.00	0.0
507NOlive-SS2	12/18/15	0.0	0.0	20.9	0.00	0.0
507NOlive-SS3	12/18/15	10.9	0.0	20.9	-0.08	0.0
507NOlive-SS4	12/18/15	6.7	0.0	20.9	-0.10	0.0
507NOlive-SS5	12/18/15	0.0	0.0	20.9	0.00	0.0
507NOlive-SS6	12/18/15	0.0	0.0	20.9	0.00	0.0
507NOlive-SS7	12/18/15	0.0	0.0	20.9	0.00	0.0
610NOldStLouis-Back entrance	12/16/15	2.3	0.0	--	--	0.0
610NOldStLouis-Basement	12/16/15	7.0	0.0	--	--	0.0
610NOldStLouis-Sump in basemen	12/16/15	4.4	0.0	--	--	0.0
610NOldStLouis-SS1	12/16/15	4.5	0.0	11.9	0.00	0.0
610NOldStLouis-SS2	12/16/15	0.0	0.0	10.3	0.00	0.0
610NOldStLouis-SS3	12/16/15	0.0	0.0	13.3	0.00	0.0
610NOldStLouis-Back entrance	12/18/15	1.3	0.0	--	--	0.0
610NOldStLouis-Basement	12/18/15	1.7	0.0	--	--	0.0
610NOldStLouis-Sump in basemen	12/18/15	1.4	0.0	--	--	0.0
610NOldStLouis-SS1	12/18/15	0.0	0.0	12.1	0.00	0.0
610NOldStLouis-SS2	12/18/15	0.0	0.0	10.0	0.00	0.0
610NOldStLouis-SS3	12/18/15	0.0	0.0	19.4	0.00	0.0
619NOlive-Basement	12/16/15	1.3	0.0	--	--	0.0
619NOlive-Basement (E end)	12/16/15	1.3	0.0	--	--	0.0
619NOlive-Basement (W end)	12/16/15	1.3	0.0	--	--	0.0
619NOlive-Drain in Basement	12/16/15	1.3	0.0	--	--	0.0
619NOlive-SS1	12/16/15	--	--	--	30.00	--
619NOlive-SS2	12/16/15	0.0	0.0	20.9	0.00	0.0
619NOlive-SS3	12/16/15	--	--	--	18.00	--
619NOlive-Basement	12/18/15	1.4	0.0	--	--	0.0
619NOlive-Basement (E end)	12/18/15	1.4	0.0	--	--	0.0
619NOlive-Basement (W end)	12/18/15	1.3	0.0	--	--	0.0
619NOlive-Drain in Basement	12/18/15	1.2	0.0	--	--	0.0
619NOlive-SS1	12/18/15	--	--	--	0.90	--

APPENDIX H-2. RIVER STAGE TRIGGERED MONITORING EVENT (EBMP-27) FIELD SCREENING DETECTION RESULTS, DECEMBER 2015
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
619NOlive-SS2	12/18/15	--	--	--	--	--
619NOlive-SS3	12/18/15	0.0	0.0	18.6	0.00	0.0

Notes:
- Sub slab measurements were not collected when water was pulled from probe, intial pressure measurements are indicative of water
- Field equipment includes a dwyer series 475 micromanometer, Thermo Scientific TVA1000 FID (flame ionization detector) equiped with PID (photoionization detector), and a REA Systems multiRAE four gas meter
- Additional action is required when FID concentrations exceed 10 ppmv in the indoor air or 350 ppmv in the sub slab

in-H_2O - inches of water
% - percent
%LEL - percent lower explosive limit
ppmv - parts per million by volume
-- - not analyzed
TVPH - total volatile petroleum hydrocarbons
FID - flame ionization detector

APPENDIX H-3. RIVER STAGE TRIGGERED MONITORING EVENT (EBMP-28) FIELD SCREENING DETECTION RESULTS, JANUARY 2016
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
101EBirch-Basement	01/06/16	0.0	0.0	--	--	0.0
101EBirch-N drain Basement	01/06/16	0.0	0.0	--	--	0.0
101EBirch-NW Bedroom Basement	01/06/16	0.0	0.0	--	--	0.0
101EBirch-S Drain Basement	01/06/16	0.0	0.0	--	--	0.0
101EBirch-SS1	01/06/16	--	--	--	0.00	--
101EBirch-SS2	01/06/16	--	--	--	0.00	--
101EBirch-SS3	01/06/16	6.0	0.0	20.1	-0.18	--
117WBirch-Back/N porch	01/06/16	2.7	0.0	--	--	0.0
117WBirch-Basement	01/06/16	3.3	0.0	--	--	0.0
117WBirch-Floor Drain	01/06/16	2.3	0.0	--	--	0.0
117WBirch-SS1	01/06/16	26.0	0.0	20.9	0.00	0.0
117WBirch-SS2	01/06/16	0.0	0.0	20.0	0.00	0.0
117WBirch-SS3	01/06/16	0.0	0.0	17.3	0.00	0.0
129WBirch-Basement-CW central	01/06/16	0.0	0.0	--	--	0.0
129WBirch-Basement-furnace roo	01/06/16	1.3	0.0	--	--	0.0
129WBirch-Basement-laundry roo	01/06/16	0.0	0.0	--	--	0.0
129WBirch-Basement-NW bathroom	01/06/16	0.0	0.0	--	--	0.0
129WBirch-Basement-NW bedroom	01/06/16	0.0	0.0	--	--	0.0
129WBirch-Basement-S Game Room	01/06/16	1.3	0.0	--	--	0.0
129WBirch-Basement-Shower Drai	01/06/16	0.0	0.0	--	--	0.0
129WBirch-NE Family Room	01/06/16	0.0	0.0	--	--	0.0
129WBirch-SS1	01/06/16	0.0	0.0	19.7	0.00	0.0
129WBirch-SS2	01/06/16	0.0	0.0	20.9	0.00	0.0
129WBirch-SS3	01/06/16	0.0	0.0	17.2	0.00	0.0
309NOlive-Basement	01/06/16	0.0	0.0	--	--	0.0
309NOlive-Dining room/Kitchen	01/06/16	0.0	0.0	--	--	0.0
309NOlive-Drain	01/06/16	0.0	0.0	--	--	0.0
309NOlive-Drain in Basement	01/06/16	0.0	0.0	--	--	0.0
309NOlive-N central room	01/06/16	0.0	0.0	--	--	0.0
309NOlive-S central room	01/06/16	0.0	0.0	--	--	0.0

APPENDIX H-3. RIVER STAGE TRIGGERED MONITORING EVENT (EBMP-28) FIELD SCREENING DETECTION RESULTS, JANUARY 2016
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)
309NOlive-SE room	01/06/16	0.0	0.0	--	--	0.0
309NOlive-Sump in basement	01/06/16	0.0	0.0	--	--	0.0
309NOlive-SS1	01/06/16	0.0	0.0	20.9	0.00	0.0
309NOlive-SS2	01/06/16	--	--	--	--	--
309NOlive-SS3	01/06/16	23.0	0.0	20.9	0.00	0.0
507NOlive-Basement	01/06/16	0.0	0.0	--	--	0.0
507NOlive-Bathroom in Basement	01/06/16	0.0	0.0	--	--	0.0
507NOlive-Computer room	01/06/16	0.0	0.0	--	--	0.0
507NOlive-E Porch	01/06/16	0.0	0.0	--	--	0.0
507NOlive-Floor drain in Basem	01/06/16	0.0	0.0	--	--	0.0
507NOlive-Front porch	01/06/16	0.0	0.0	--	--	0.0
507NOlive-Kitchen	01/06/16	0.0	0.0	--	--	0.0
507NOlive-Living room	01/06/16	0.0	0.0	--	--	0.0
507NOlive-SS1	01/06/16	--	--	--	--	--
507NOlive-SS2	01/06/16	0.0	0.0	20.9	0.00	0.0
507NOlive-SS3	01/06/16	4.2	0.0	20.9	-0.07	0.0
507NOlive-SS4	01/06/16	17.3	0.0	20.9	-0.08	0.0
507NOlive-SS5	01/06/16	0.0	0.0	20.9	0.00	0.0
507NOlive-SS6	01/06/16	0.0	0.0	20.9	0.00	0.0
507NOlive-SS7	01/06/16	0.0	0.0	20.9	0.00	0.0
610NOldStLouis-Back entrance	01/06/16	2.2	0.0	--	--	0.0
610NOldStLouis-Basement	01/06/16	4.1	0.0	--	--	0.0
610NOldStLouis-Sump in basemen	01/06/16	4.1	0.0	--	--	0.0
610NOldStLouis-SS1	01/06/16	8.3	0.0	4.8	0.00	0.0
610NOldStLouis-SS2	01/06/16	9.0	0.0	2.5	0.00	0.0
610NOldStLouis-SS3	01/06/16	0.0	0.0	11.8	0.00	0.0

Notes:
- Sub slab measurements were not collected when water was pulled from probe, intial pressure measurements are indicative of water
- Field equipment includes a dwyer series 475 micromanometer, Thermo Scientific TVA1000 FID (flame ionization detector) equiped with PID (photoionization detector), and a REA Systems multiRAE four gas meter
- Additional action is required when FID concentrations exceed 10 ppmv in the indoor air or 350 ppmv in the sub slab

APPENDIX H-3. RIVER STAGE TRIGGERED MONITORING EVENT (EBMP-28) FIELD SCREENING DETECTION RESULTS, JANUARY 2016
HARTFORD PETROLEUM RELEASE SITE, HARTFORD, ILLINOIS

Location ID	Date Sampled	FID TVPH Concentration, Direct Read (ppmv)	LEL (%)	Oxygen (%)	Pressure (in-H2O)	Total Organic Vapor by PID (ppmv)

in-H_2O - inches of water
% - percent
%LEL - percent lower explosive limit
ppmv - parts per million by volume
-- - not analyzed
TVPH - total volatile petroleum hydrocarbons
FID - flame ionization detector